Harbison State Forest

Forest Certification Management Plan

South Carolina Forestry Commission

Working Document

Febuary 2023

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Scope

This SFI Manual was developed for the improved long-term management of Harbison State Forest. Harbison State Forest is a 2177-acre green space located within the city limits of Columbia about 9 miles from downtown. Purchased by the Forestry Commission in 1945, Harbison is being developed as a teaching forest. In addition to the numerous school, scout, and adult programs that are conducted each year, interpretive signage is in place with more planned. This combination of scheduled programs along with unobtrusive educational signs encourages visitors in both structured and recreational settings to learn about the Forest. Harbison State Forest holds a unique place in the landscape as being one of the largest green spaces, within city limits, in the southeast. With the ever-growing development and fragmentation of the surrounding forest, the protection of contiguous acreage is of ever-growing importance. Harbison has also developed into corner stone for outdoor recreation in the area adding to its societal importance. Due to the importance of the protected acres within the landscape, Harbison State Forest is considered a Forest of Recognized Importance (FORI). Through adhering to accepted forestry practices, Harbison serves as an example of how timber management can co-exist with other management objectives.

Company Description

Harbison State Forest is comprised of one large contiguous block, and an adjacent portion, isolated from the main portion by a major roadway. Stands are delineated at an appropriate scale for management (Figure 1). Data for these stands are maintained in a GIS, which contains all relevant stand-level data. As a State Forest, we are committed to long-term sustainable management of the resource for multiple-use purposes. However, unique to our Agency, our State Forest system is mandated to be self-supporting, with the majority of our income coming from timber harvest operations. Therefore, within the scope of our management approach, and our attempt to provide the people of South Carolina with the greatest and best use of the Forest, we do so with the over-arching requirement that significant timber harvesting will be required.

Figure 1 *Harbison State Forest stand delineation.*

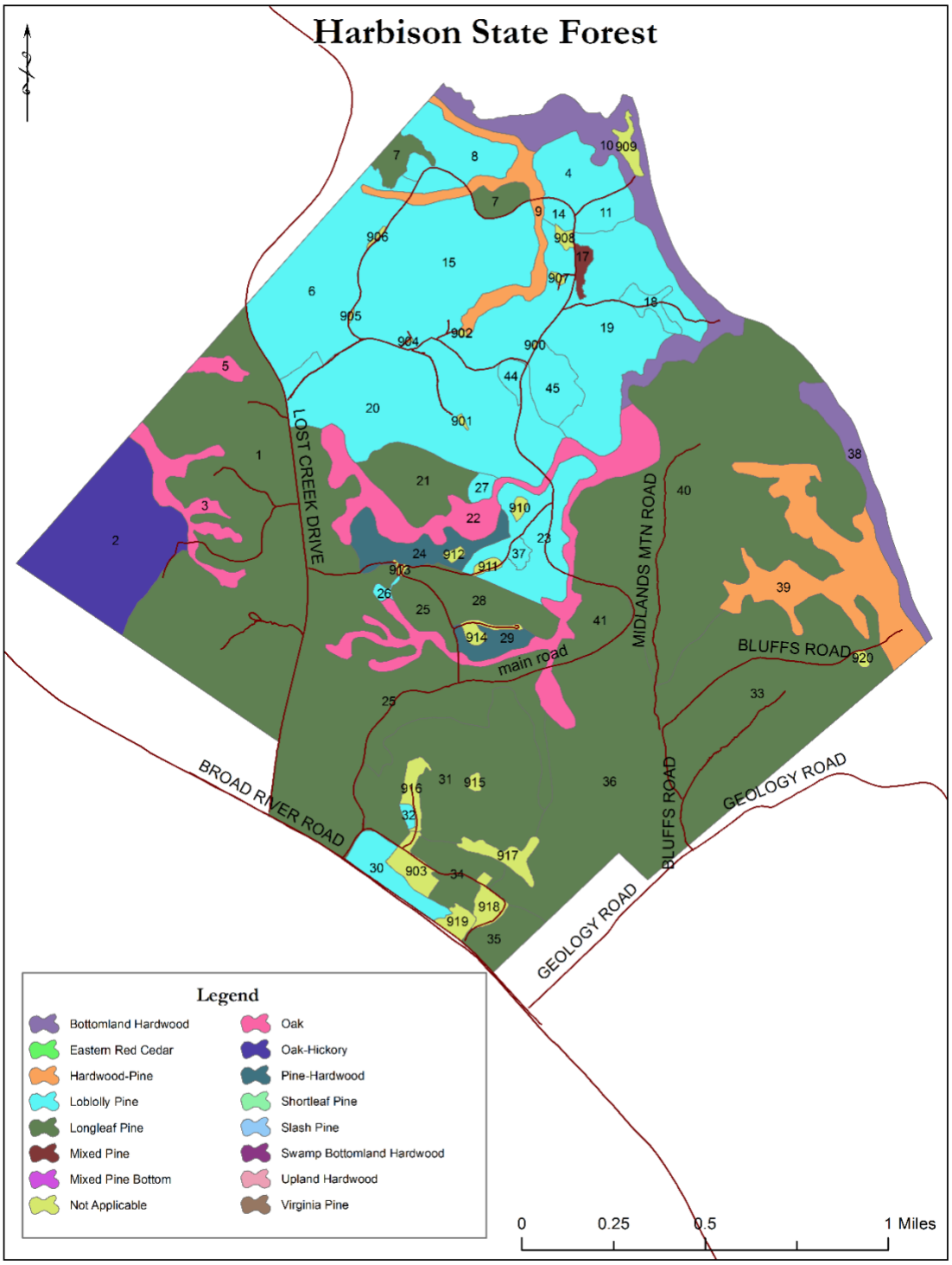
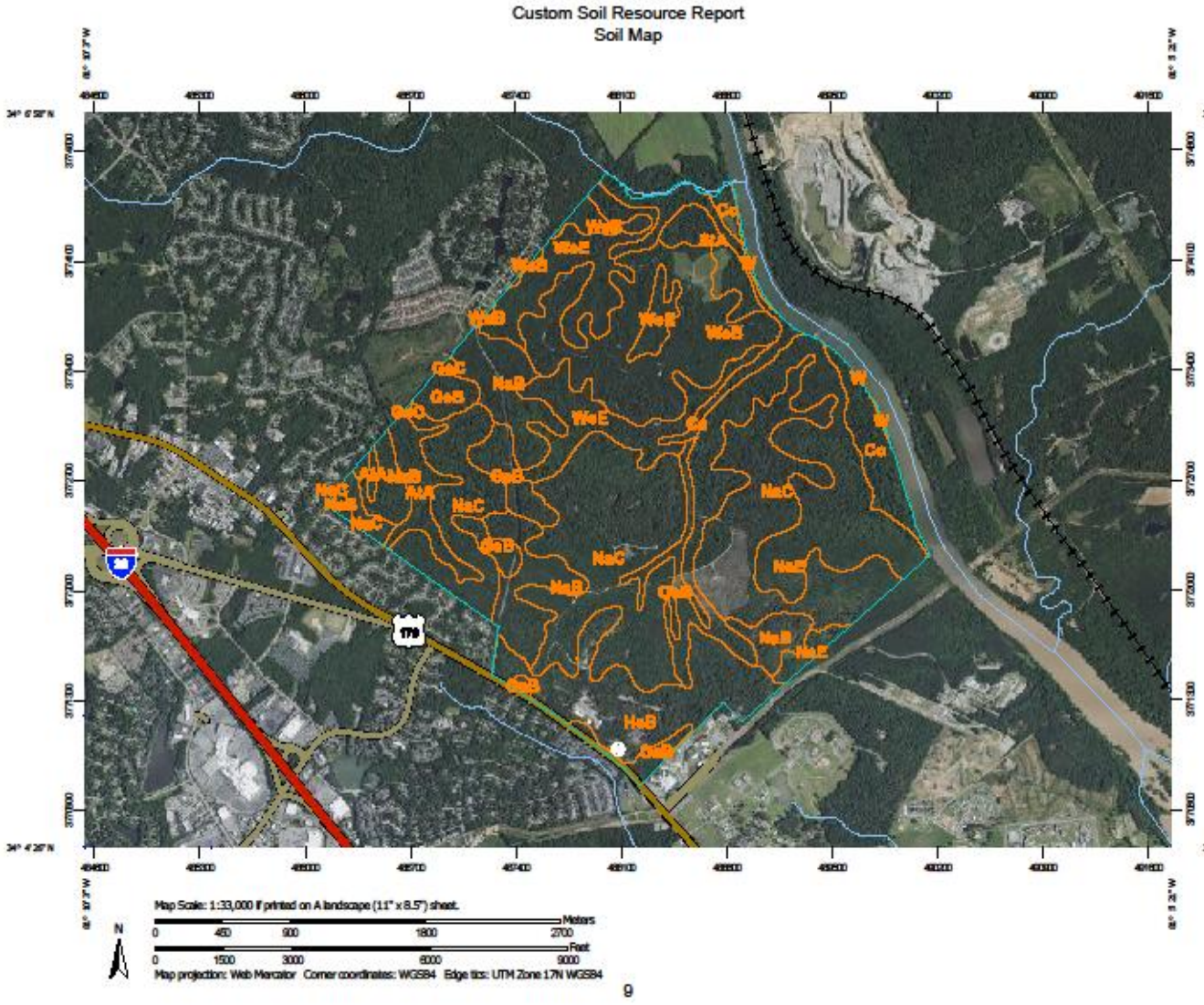


Figure 2. NCRS Soil Report Map



Harbison State Forest SFI Commitments

A. Formal commitment to the SFI Standard

The South Carolina Forestry Commission and Harbison State Forest, in particular, are committed to the SFI Standard and following the guidelines for the Standard as part of our State Forest Lands management program.

B. Formal commitment to comply with applicable social laws

The South Carolina Forestry Commission and Harbison State Forest, in particular, are committed to complying with all social laws, including but not limited to those covering civil rights, equal employment opportunities, anti-discrimination and anti-harassment measures, workers' compensation, indigenous peoples' rights, workers' compensation, indigenous people's rights, workers' and communities' right to know, prevailing wages, workers' right to organize and occupational health and safety.

C. Fiber sourcing policy

The South Carolina Forestry Commission and State Forest land division have not developed and do not have plans to develop a robust fiber sourcing policy. However, we do adhere to many principles of sustainable forestry and the best use of forest products. If specific fiber sourcing issues arise that will be addressed in the forest product sale contract. All harvests conducted must be done in strict accordance with BMP guidelines, and we monitor harvesting operations to ensure compliance

Forest Land Management (SFI Objectives 1-15)

1. Forest Management Planning

A. Forest management plan(s)

Sustainability is and always should be a sine qua non of responsible forest management. Harbison State Forest will be managed to be a healthy, productive, forested ecosystem while improving the quality of life of South Carolina's citizens through the environmental, educational, economic, and recreational benefits of active forest management. The individual management goals can be subdivided into the following four broad categories.

Environment

Harbison State Forest will serve as a leader in environmental protection by implementing science-based, multiple-use forest management practices. Conservation of biological diversity will be a high priority. Protection of soil, water, and air resources will be an integral part of all forest management activities.

Education

Harbison State Forest will be utilized as a demonstration forest, providing the necessary educational resources and opportunities to raise awareness of the benefits of forest resource management. We will strengthen our association with colleges and universities to promote forestry-related research and outreach to forest landowners and forestry professionals. Our State Forest will be used as a training center for agency personnel to meet job demands.

Economy

Harbison State Forest will contribute to local and state economies through the sustainable production and sale of forest products. Comprehensive planning, using the latest technology, will be employed to determine sustainable harvest levels. Revenue will be utilized to further the mission of the agency.

Recreation

Harbison State Forest will provide outdoor recreation, compatible with forest management activities. Through statewide and local planning efforts and on-site monitoring, we will involve technical experts and user groups in determining the optimal levels of recreational opportunities at each State Forest.

Timber Harvesting and Stand ***Management***

The primary management objectives of Harbison State Forest are as a Demonstration Forest with a strong recreational and, educational component. The following outline addresses our approach for timber harvest scheduling, at the stand level. Due to the advanced age of the stands on Harbison State Forest natural mortality is resulting in negative volume growth(see Figures 3 and 4). Future harvesting will be used to promotes stand health, while additionally serving to demonstrate different silvicultural practices. To serve as a demonstration forest the diversity of the landscape is utilized to demonstrate forest management in conditions a private landowner might face. In locations where stands with similar characteristics are found different silvicultural practices are used to demonstrate the various effects on the resource. The result is a forest with a mosaic of diverse stands that simulates different land owner objectives.

Future management actives should work toward adding to this management diversity.

Figure 3. Measured and predictive growth on Harbison State Forest vs. Allowable Harvest in tons. (UF/IFAS Integrated Model for Growth and Yield)

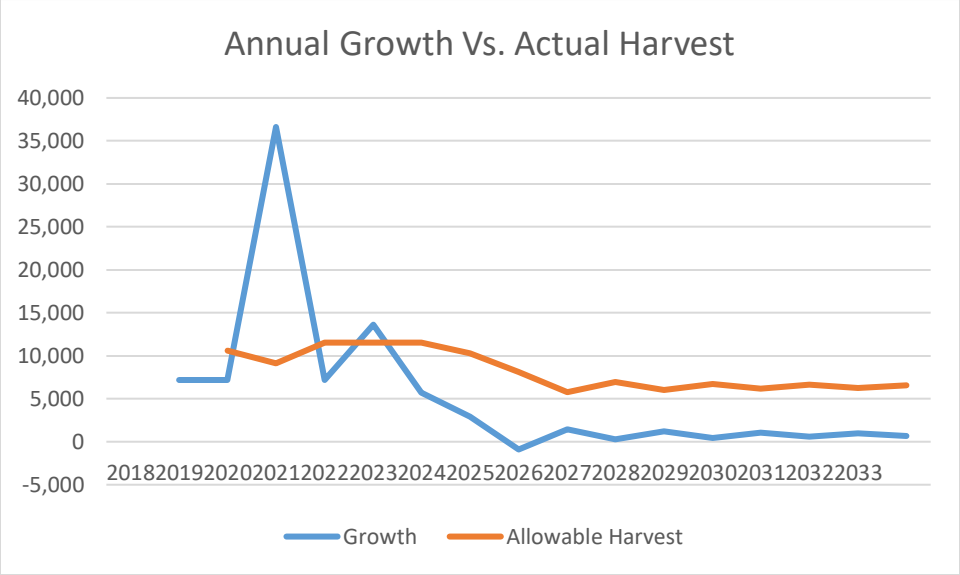
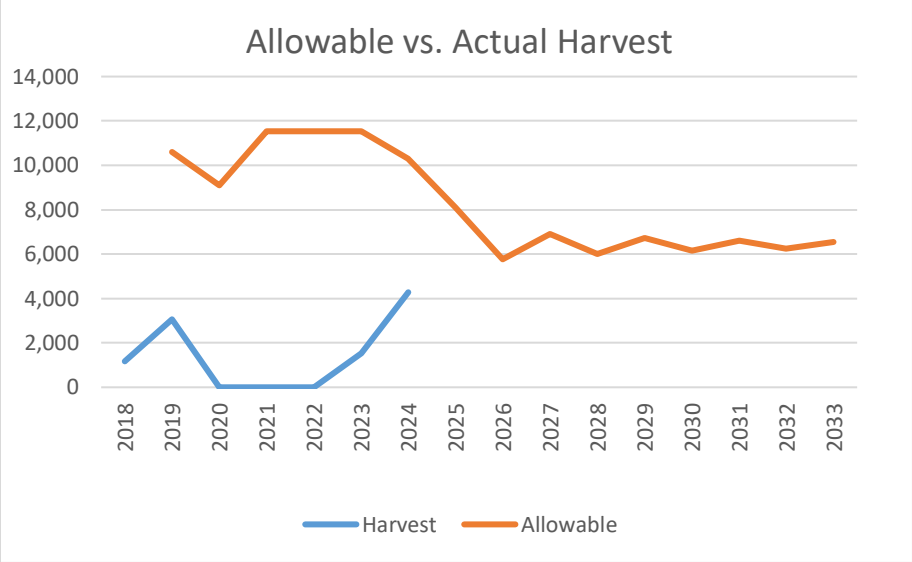


Figure 4. Allowable vs Actual Harvest in tons (Max annual harvest is not to exceed yearly growth 80% of yearly growth and previous years uncut allowance)



Stand descriptions herein focus on current stand conditions and any recommended stand management activity to be conducted in the short term. Long-term management goals for these stands, specifically the future conditions of the stands past final harvest (if required) are to maintain the stands in their present forest

type and regenerate or allow them to regenerate to the same forest type. There are two potential exceptions to this condition. First and most commonly, the stand type or structure may be altered to return the stand to a more natural or historical condition. For example, in stands with dominant longleaf pine but a minor component of loblolly pine, management activities such as intermediate thinnings or prescribed fire may favor the stand development to be more uniformly longleaf pine. The other potential change in forest type may occur when a stand is harvested partially or in full for the establishment of research plots, stands, or other areas. As previously stated, Harbison is managed for educational purposes, and efforts to establish research plots are ongoing.

For timber management purposes, the forest has been divided into fairly homogeneous management areas. The dividing lines between these areas are often components of the man-made infrastructure, such as roads and timber sale boundaries. Other divisions are more subtle, such as the relative amount of pines versus hardwoods. Below are descriptions of these areas:

Note: Stands 1-3, 5 are on the west side of Lost Creek Drive, an area with a large degree of Wildland urban interface. The forest management plan for this part of Harbison may need to be modified as the urban interface increases

Stand Number: 1
Stand Size: 209 acres
Site index: 84
Age of dominant size class: 90
Date inventoried: 05/19/2022
Volumes:

BA:	80		
	Pulp	C-N-S	Sawtimber
Pine(tons)	1	2	42
Hardwood	3	0	10

Current Stand Conditions:

This area is comprised of longleaf and loblolly overstory with hardwoods slowly becoming dominant in the overstory. The understory is oak, hickory, and loblolly, with significant longleaf pine in the seedling stage. Growth is fair in most areas. DBH range from 6" to 18". Due to the exclusion of fire, this area is slowly converting to a hardwood and loblolly pine mixed stand.

Future Stand Conditions:

This stand may be allowed to naturally convert to an oak-hickory forest to preserve the visional buffer between the state forest and adjacent neighborhoods. In areas, where visual concerns are not present a new stand, may be formed using a rotational harvest.

Forest Management Activities:

- Investigate dividing stand into two management units
- Delineate visual buffers.

Stand Number: 2
Stand Size: 80 acres
Site index:66
Age of dominant size class:
Date inventoried: 05/23/2022
Volumes:

BA:	77		
	Pulp	C-N-S	Sawtimber
Pine (tons)	1	2	18
Hardwood	10	0	19

Current Stand Conditions:

This poor to fair quality stand of mixed pine/hardwood. The overstory is comprised of longleaf, loblolly, and shortleaf pines, with an oak and hickory composite. The understory is mainly an oak/hickory mix. The Lost Creek Trail runs through this stand.

Future Stand Conditions:

This stand should not be harvested at the current time. When the volume increases a group selection harvest should be considered. A demonstration rotational harvest may be considered for this stand.

Forest Management Activities:

- Delineate visual buffers.

Stand Number: 3
Stand Size: 19.67 acres
Site index: 67
Age of dominant size class:95
Date inventoried: 5/23/2022
Volumes:

BA: pine	76		
	Pulp	C-N-S	Sawtimber
Pine tons	13		
Hardwood tons	55		

Current Stand Conditions:
This area is a hardwood drain defined by an intermittent stream running through the middle of the stand. Growth appears to be fair with a basal area around 76 square feet/acre. Diameters range from 7" to 40".
Future Stand Conditions:
This stand will be managed in perpetuity as a riparian buffer area. The desired stand composition is of a mature hardwood stand.
Forest Management Activities:

- No recommended actions

Stand Number: 4

Stand Size: 21 acres

Site index: 96

Age of dominant size class: 98

Date inventoried: 6/13/2018

Volumes:

BA:	65		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	1	0	54
Hardwood tons/ac	55		

Current Stand Conditions:

This area was salvage-cut in 2002, and the remaining trees are 8" to 20" loblolly pines are growing fairly slow. The understory consists of 1" to 8" diameter sweetgum, red maples, and mixed oaks with patches of pine saplings 6" to 2' tall.

Future Stand Conditions:

This stand should be managed for long-rotation loblolly pine. After the final harvest, the site should be prepped and replanted in loblolly.

Forest Management Activities:

- Rotational Harvest in the next 5 to ten years (when stand 11 has meet adjacency conditions). Replant in loblolly

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Stand Number: 5

Stand Size: 4.5 acres

Site index: 96

Age of dominant size class: 78

Date inventoried: 2022

Volumes:

BA:	110		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0		14
Hardwood tons/ac	6	0	71

Current Stand Conditions:

This is a small area of bottomland hardwoods comprised primarily of oaks.

Future Stand Conditions:

This stand should be managed for wildlife and water quality benefits and allowed to stay as a mature hardwood stand.

Forest Management Activities:

- None

Stand Number: 6

Stand Size: 72 acres

Site index: 80

Age of dominant size class: 71

Date inventoried: 2020

Volumes:

BA:			
	Pulp	C-N-S	Sawtimber
Pine tons/ac	4	0	43
Hardwood tons/ac	15		

Current Stand Conditions:

Loblolly dominants this area, both in the 4"-24" dbh overstory trees and the fairly good stand of 1 to 4-foot pine seedlings. This area contains large amounts of gullies. The Stewardship Trail runs through this area.

Future Stand Conditions: The primary management objective is to maintain soil stability. Where soil stability is not a concern patch clear cuts and natural regeneration may be used to achieve an uneven age loblolly stand. This stand should be managed for uneven age loblolly pine. Special consideration should be made in leaving trees that may be helping to prevent erosion.

Forest Management Activities:

- Identify areas where access and soil stability would allow harvesting.
  erosion.

Stand Number: 7

Stand Size: 14 acres

Site index: 86

Age of dominant size class: 20

Date inventoried: 2022

Volumes:

BA:	74		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0.5	0	19
Hardwood tons/ac	7		

Current Stand Conditions:

This area was planted in 2003 in longleaf pine on a 10x10 spacing. Loblolly volunteers and some sweetgum sprouts are heavily competing with longleaf seedling.

Future Stand Conditions:

Manage as a mix pine stand.

Forest Management Activities:

- No management recommendation at this time.

Stand Number: 8

Stand Size: 16 acres

Site index: 96

Age of dominant size class: 96

Date inventoried: 2022

Volumes:

BA:	130		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	4	3	80
Hardwood tons/ac	15		

Current Stand Conditions:

This area contains an overstory that consists of a hardwood/pine mixed stand, with the majority of the pines located along the road and trail corridors.

Future Stand Conditions:

Manage as an uneven age mixed hardwood pine stand.

Forest Management Activities:

- Update inventory and assess for TSI harvest

Stand Number: 9

Stand Size: 26.25 acres

Site index: 86

Age of dominant size class: 96

Date inventoried: 2022

Volumes:

BA:	88		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	1	15
Hardwood tons/ac	30		

Current Stand Conditions:

This hardwood drain and a riparian area. It contains red maple, southern red oak, dogwood, holly, and elm as well as a fairly abundant component of wax myrtle. Scattered loblolly pine and a few shortleaf pines are also present.

Future Stand Conditions:

Allow to natural convert to a mature hardwood stand to maintained in perpetuity with old growth characteristics.

Forest Management Activities:

- No action

Stand Number: 10

Stand Size: 57 acres

Site index: 86

Age of dominant size class: 97

Date inventoried: 2001

Volumes:

BA:	83		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	32	0	10
Hardwood tons/ac	10		

Current Stand Conditions:

This narrow stand of bottomland hardwoods consists of good-quality bottomland hardwoods such as Cherrybark oak, ash, water oak, southern red oak, and yellow-poplar. Much of this stand is in the SMZ of Nicholas Creek and the Broad River and was burned in winter 2017.

Future Stand Conditions:

Maintain as a mature hardwood stand in perpetuity

Forest Management Activities:

- Possible select individual tree harvest when the adjacent stand is harvested.

Stand Number: 11 Not in use

Stand Number: 12

Stand Size: 31 acres

Site index: 80

Age of dominant size class: 84

Date inventoried: 06/18/2020

Volumes:

BA:	20		
	Pulp	C-N-S	Sawtimber
Pine tons/ac			15
Hardwood tons/ac		1	

Current Stand Conditions:

This stand was harvested using a modified seed tree method to promote longleaf regeneration.

Future Stand Conditions:

Manage for a multiple age class longleaf stand. Mature trees will be left in place while regeneration is promoted.

Forest Management Activities:

- Burn winter 2021 to promote a good seedbed.
- Support plant areas with inadequate regeneration.

Stand 13: not in use

Stand Number: 14

Stand Size: 14 acres

Site index: 80

Age of dominant size class: 2

Date inventoried: 2022

Volumes:

BA:	0		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	0	0
Hardwood tons/ac	0		

Current Stand Conditions:

This stand was clear-cut in 2019 and planted with loblolly in 2021.

Future Stand Conditions:

Manage as a loblolly pine plantation

Forest Management Activities:

- Treat with herbicide 2020
- Site prep burn 2020
- Plant loblolly 2021

Stand Number: 15
Stand Size: 123 acres

Site index: 96

Age of dominant size class: 74

Date inventoried: 7/13/2017

Volumes:

BA:	88		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	4	2	33
Hardwood tons/ac	12		

Current Stand Conditions:

The 70-year old loblolly pines in this area are 4" to 16" in diameter and are growing somewhat slowly. The area contains poor soils with several gullies running through it. This area contains many large openings with some regeneration of 5-10 feet. There is little to no regeneration in the understory. There are also many wildlife opening and campsites locates in this area. Areas that allowed for equipment access was thinned in 2006

Future Stand Conditions:

Maintain in an uneven age loblolly stand while protecting highly erodible soils.

Forest Management Activities:

- This stand will be split in half forming stand 15 and 16. Stand 15 will be cut using a seed tree harvesting method in the next 2 years.

Stand 16: not in use

Stand 17: (Approx. 3 acres) **Stand Number: 17**
Stand Size: 3 acres

Site index: 70

Age of dominant size class: 20

Date inventoried: 2022

Volumes:

BA:	50		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	0	3
Hardwood tons/ac	18		

Current Stand Conditions:

This area is planted in longleaf pine that are 8-10 feet tall. There is some competition from hardwoods and volunteer loblolly seedling is a problem. This stand was burned in 2017

Future Stand Conditions:

Uneven age longleaf pine stand

Forest Management Activities:

- Continue to prescribe burn every 2-3 years. Site visit to reassess conditions.

Stand Number: 18

Stand Size: 5 acres

Site index: 90

Age of dominant size class: 2

Date inventoried: 2022

Volumes:

BA:	145		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	60	16	4
Hardwood tons/ac	0		

Current Stand Conditions:

This area was planted during December 1998 with improved coastal loblolly pine on an 8 by 10-foot spacing (545 trees per acre). A large amount of volunteer seedlings is dominating this stand. The north side of the Canoe Landing Road was pre-commercially thinned, to a basal area of 60 feet/acre, in October 2006 and was burned in 2017

Future Stand Conditions:

When the characteristics of this stand resemble that of stand 19 it will be included in that stand.

Forest Management Activities:

- Possible row thinning when stand 19 is harvested.

Stand Number: 19

Stand Size: 83 acres

Site index: 96

Age of dominant size class: 68

Date inventoried: 6/4/2018

Volumes:

BA:	67		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	1	1	15
Hardwood tons/ac	7		

Current Stand Conditions:

This stand is a mix of pine and hardwood with pockets of advanced pine regeneration. Growth of the 8" to 18" loblolly pine overstory is fair. A canoe landing with a primitive camping area, parking area, and self-contained restroom is located in this area near the confluence of Middle Creek and Broad River. The Stewardship Trail runs through this area. This stand was burned in 2017

Future Stand Conditions:

Continue to favor softwood species, and if possible allow the stand to become dominant in longleaf pine. Establish an uneven are pine stand using a combination of fire and thinning

Forest Management Activities:

- Burn every 3-4 years.
- In 5-10 years thin to 50 BA using individual and group selection favoring Longleaf Pine
- Update inventory

Stand Number: 20

Stand Size: 118 acres

Site index: 96

Age of dominant size class: 84

Date inventoried: 6/21/2017

Volumes:

BA:	81		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3.5	0.1	14.5
Hardwood tons/ac	12		

Current Stand Conditions:

This area is old farmland with poor site quality on the hills and good productivity in low areas. Deep gullies are scattered throughout the area. This and is comprised of mostly loblolly pine with some shortleaf and longleaf components. The understory is comprised of pine and hardwood regeneration. This area was cut in 1996 to demonstrate uneven-aged management.

Future Stand Conditions:

Uneven loblolly pine stand with no less than 2 age classes, With a BA of 100 pre-harvest.

Forest Management Activities:

In 5-10 years thin to 50 BA using individual and group selection favoring Loblolly Pine. Develop a third age class

Stand Number: 21

Stand Size: 27 acres

Site index: 70

Age of dominant size class: 84

Date inventoried: 6/22/2020

Volumes:

BA:	108		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	2	46
Hardwood tons/ac	41		

Current Stand Conditions:

This area is old farmland with poor site quality on the hills and good productivity in low areas. Deep gullies are scattered throughout the area. This and is comprised of mostly loblolly pine with some shortleaf and longleaf components. The understory is comprised of pine and hardwood regeneration. This area was cut in 1996 to demonstrate uneven-aged management.

Future Stand Conditions:

Manage as mixed hardwood pine conditions in perpetuity.

Forest Management Activities:

- No current forest management recommendation, reassess in 5 years.

Stand Number: 22

Stand Size: 82 acres

Site index: 86

Age of dominant size class: 84

Date inventoried: 08/14/2020

Volumes:

BA:	64		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	0	6
Hardwood tons/ac	25		

Current Stand Conditions:

White oaks and red oaks dominant this area of hardwoods that occurs along drains and on hillsides. Loblolly and longleaf pine are also scattered throughout the area. Diameters range from 8" to 24"

Future Stand Conditions:

Manage as a mature hardwood stand for aesthetics and water protection.

Forest Management Activities:

- No current forest management recommendation.
- Select trees may be harvested when adjacent stands are harvested.

Stand Number: 23

Stand Size: 37 acres

Site index: 96

Age of dominant size class: 84

Date inventoried: 8/15/2018

Volumes:

BA:	96		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	1	0	17
Hardwood tons/ac	15		

Current Stand Conditions:

Loblolly pine is the dominant species in this area, with widely scattered longleaf and shortleaf as well. Growth is poor to fair. The Main Road, Firebreak Trail, and Eagle Trail run through this area. The arboretum also is found in this area. Part of this stand was burned in 2016

Future Stand Conditions:

Manage as an uneven age loblolly stand with a high priority of aesthetics

Forest Management Activities:

- Continue to burn every 3-4 years

Stand Number: 24

Stand Size: 20 acres

Site index: 80

Age of dominant size class: 84

Date inventoried: 08/15/2018

Volumes:

BA:	62		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	1	17
Hardwood tons/ac	10		

Current Stand Conditions:

This pine/hardwood area contains several Southern Pine Beetle (SPB) spots with heavy downed timber. The Main Road, Firebreak Trail, and Eagle Trail run through this area.

Future Stand Conditions:

Manage as an uneven age loblolly stand with a high priority of aesthetics

Forest Management Activities:

- Thin the portions of this stand that are not impacted by recreation in the next 5 years.

Stand Number: 25

Stand Size: 201 acres

Site index: 67

Age of dominant size class: 82

Date inventoried: 7/21/2017

Volumes:

BA:	84		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	0	21.5
Hardwood tons/ac	14		

Current Stand Conditions:

This is a good quality stand of longleaf, loblolly, and scattered shortleaf that are 6" to 18" in diameter.

The Main Road, Firebreak Trail, and Eagle Trail run through this area.

Future Stand Conditions:

Manage as an uneven age mix pine stand, favoring longleaf, with a high priority of aesthetics

Forest Management Activities:

- Thin the portions of this stand that are not impacted by recreation in the next 5 years.
- Consider subdividing into more manageable units.

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Stand Number: 26
Stand Size: 3 acres
Site index: 80
Age of dominant size class: 21
Date inventoried: 8/13/2018

Volumes:

BA:	80		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	8	0
Hardwood tons/ac	2		

Current Stand Conditions: The 15 to 20-foot pines in this area seeded in after the overstory was removed following an SPB. attack. The stocking level is generally good, although there is a significant amount of competition from sweetgum sprouts.

Future Stand Conditions:

Allow this stand to grow into mature pine, and merge with stand 25 over time, and manage as recommended.

Forest Management Activities:

- .No management recommendation for the next 10 years.

Stand Number: 27
Stand Size: 2 acres
Site index: 80
Age of dominant size class: 16
Date inventoried: 8/10/2018
Volumes:

BA:	90		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	3	0	0
Hardwood tons/ac	11		

Current Stand Conditions: This area was a large SPB. spot and was replanted in January of 2003 with Loblolly trees are 15-20 feet tall.

Future Stand Conditions:

Allow this stand to grow into mature pine, and merge with stand 20 over time, and manage as recommended.

Forest Management Activities:

- No management recommendation for the next 10 years.

Stand Number: 28

Stand Size: 25 acres

Site index: 70

Age of dominant size class: 84

Date inventoried: 8/15/2018

Volumes:

BA:	64

	Pulp	C-N-S	Sawtimber
Pine tons/ac	1		33
Hardwood tons/ac	6		

Current Stand Conditions: This area consists of generally good quality longleaf and loblolly with a few scattered shortleaf. It was burned in 2016

Future Stand Conditions:

Manage as an uneven age longleaf pine stand

Forest Management Activities:

- Prescribe burn every 2-3 years.
- Thin using individual tree selection in the next 2-3 years.

Stand Number: 29
Stand Size: 8 acres
Site index: 80
Age of dominant size class: 92
Date inventoried: 6/30/2020
Volumes:

BA:	127		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	0	94
Hardwood tons/ac	16		

Current Stand Conditions: This pine/hardwood area is close to the Gazebo and is one of the areas of the forest most heavily utilized by school groups and picnickers. It contains the Discovery Trail as well as several educational exhibits. Loblolly and a few longleaf pines as well as red oak, white oak, maple, and dogwood can be found in this area.
Future Stand Conditions:
Pine hardwood mix naturally converting over to an all Hardwood mix
Forest Management Activities:

- No management recommendations.

Stand Number: 30
Stand Size: 17 acres
Site index: 70
Age of dominant size class: 84
Date inventoried: 6/27/2018
Volumes:

BA:	73		
	Pulp	C-N-S	Sawtimber

Pine tons/ac	3	8	17
Hardwood tons/ac	7		

Current Stand Conditions: This is loblolly pines stand, along with scattered longleaf, are growing fairly slowly. The average diameter is 10" to 16", This area along Broad River Road provides a visual buffer that separates Broad River Rd. and The Columbia Shop Complex.

Future Stand Conditions:

An uneven age loblolly stand with a good mid-story.

Forest Management Activities:

- Thin down to 60 BA when adjacent stands are being thinned.

Stand Number: 31
Stand Size: 91 acres
Site index: 70
Age of dominant size class: 89
Date inventoried: 5/25/2018
Volumes:

BA:	59		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	2	0.5	19
Hardwood tons/ac	6		

Current Stand Conditions: This area contains the Environmental Education Center, Learning Trail, and portions of the Firebreak Trail and Discovery Trail. It is adjacent to the Main Road. This area contains several "Prescribed Fire Demonstration Plots" and 4 outdoor classrooms.

Future Stand Conditions:

Long-rotation longleaf pine, with natural regeneration

Forest Management Activities:

- "Prescribed Fire Demonstration Plots" should continue to be burned on their annual rotation, and expanded in acreage if possible. These burns help show the public the benefits of fire and how the area will recover after a fire. Prescribed fire will also help the longleaf seedlings to initiate height growth. When the present longleaf seedlings start to mature, the overstory should be removed using a group selection method, promoting the establishment of blocks of new longleaf regeneration.

Stand Number: 32
Stand Size: 1.15 acres
Site index: 80
Age of dominant size class: 21
Date inventoried: 5/17/2017
Volumes:

BA:	100		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	21	13.5	1.5
Hardwood tons/ac	0		

Current Stand Conditions: This area was cleared for a helicopter landing zone in 1990 and was planted in January 1998 as part of a progeny test. Improved coastal loblolly pine and improved piedmont loblolly pine were planted in blocks. This has lent to multiple management strategies in this stand. First, as research plots to serve as a demonstration area. Then a managed northern section having benefited from poorly formed and diseased trees being removed from the northern section in 2008 in a pre-commercial thinning, and prescribed fire in 2010. And lastly, the southern section is currently unmanaged and being allowed to develop naturally.

Future Stand Conditions:

This research stand should be kept as is until all research interests have been met. At such time, either a new research planting should be conducted on the site

Forest Management Activities:

- The area will be managed as a demonstration stand. This stand needs to be thinned within the year.

Stand Number: 33
Stand Size: 155 acres
Site index: 70
Age of dominant size class: 82
Date inventoried: 6/8/17
Volumes:

BA:	75		
	Pulp	C-N-S	Sawtimber
Pine/ac	0.2	0	22.5
Hardwood/ac	13		

Current Stand Conditions:

This is primarily a natural longleaf pine stand. The typography is gently rolling. The stand contains 8" to 20" diameter longleaf with scattered loblolly, some advanced longleaf regeneration is forming. Most of this stand was harvested in two different harvesting operations in 2010 and 2012. Individual tree selection and patch clear cut

methods were utilized during these harvests. This stand has been prescribed burn on a 1-3 year rotation as fuels and weather permits. The basal area averages 60 square feet/acre, and the growth of these 80-year old pines is fair. Volume averages 13000 board feet/acre.

Future Stand Conditions:

The desired future condition of this stand is a multiple age class longleaf pine stand with a basal area between 50-70 square feet/ acres and on the understory of native grasses.

Forest Management Activities:

- Prescribe burn every 1-3 years to reduce fuels and control loblolly and hardwood regeneration. (burns may be postponed to protect longleaf pine seedling but should resume once seedling have reached a root collar of ½ to 3/4 inches in diameter)
- When the basal area has exceeded 70 square feet /acre the stand should be thinned to a basal area of 50 using individual tree and a group selection process evenly throughout all size classes.

Stand Number: 34
Stand Size: 17 acres
Site index: 70
Age of dominant size class: 84
Date inventoried: 5/22/2018
Volumes:

BA:	63		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0.5	0	35
Hardwood tons/ac	1		

Current Stand Conditions: This stand provides a visual buffer between the SCFC headquarters and other operational areas of the SCFC. This stand is also be used as a demonstration area of the effects of the seasonal timing of prescribed burns.

Future Stand Conditions:

Natural Longleaf stand.

Forest Management Activities:

- Continue to burn every 2-3 years as prescribed by the objective of the burn demonstration.

Stand Number: 35

Stand Size: 13 acres
Site index: 70
Age of dominant size class: 84
Date inventoried: 6/27/2018
Volumes:

BA:	100		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	13	26
Hardwood tons/ac	12		

Current Stand Conditions: This area between the headquarters building and the Criminal Justice Academy contains a mixture of longleaf pine, loblolly pine, and hardwoods that are 6" to 21" in diameter and are growing at only a marginal rate

Future Stand Conditions:

Current stand conditions, including the hardwood component, appear to serve as the need for a visual buffer quite well. Long-term stand conditions should remain similar to those currently.

Forest Management Activities:

- No management recommendation (leave as is)

Stand Number: 36
Stand Size: 137 acres
Site index: 70
Age of dominant size class: 84
Date inventoried: 6/12/2017
Volumes:

BA:	68		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	0	20.5
Hardwood tons/ac	13		

Current Stand Conditions: This area was recently thinned (2012) using an individual tree and group selection process. Thinning focused on the removal of scattered loblolly and shortleaf pines, with the intent of promoting the mature stand of longleaf pine present and its associated regeneration. The stand contains 8" to 20" diameter longleaf pines, and harvest should promote the development of longleaf in the understory, previously limited due to the presence of a heavy layer of pine straw. This stand was burned in 2015 and 2017

Future Stand Conditions:

Uneven Longleaf pine stand grown for long-rotation timber, with natural regeneration or planting of longleaf post-harvest.

Forest Management Activities:

- Continue to burn every 2-3 years
- Update inventory.

Stand Number: 37
Stand Size: 2 acres
Site index: 80
Age of dominant size class: 18
Date inventoried: 08/10/2020
Volumes:

BA:	70		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	4	0	11
Hardwood tons/ac	5		

Current Stand Conditions: This area is a large Southern Pine Beetle spot. It was salvaged in 2002. Loblolly pines are now growing in this area and are 15+ feet tall. The pines are competing with many sweetgum sprouts. This stand was burned in 2016

Future Stand Conditions:

This stand should be grown for mature loblolly, and merge with associated stand(s) when possible, for long-rotation pine products.

Forest Management Activities:

- Continue to burn every 3-4 years
- Update inventory.

Stand Number: 38
Stand Size: 2 acres
Site index: 80
Age of dominant size class: 94
Date inventoried: 06/27/2018
Volumes:

BA:	73		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0	0	0
Hardwood tons/ac	70		

Current Stand Conditions:) This area is adjacent to the Broad River and is part of the flood plain. The areas that are not part of the flood plain are characterized by steep slopes. The overstory is comprised of oaks, hickories, sweetgum, sycamores, and some pines.

Future Stand Conditions:

The stand will be allowed to maintain its oak-hickory component in perpetuity. Some light thinning may be required to encourage this. There is a potential for this stand, in part or full, to be managed as a High Conservation Value Forest.

Forest Management Activities:

- Leave as is

Stand Number: 39
Stand Size: 65 acres
Site index: 80
Age of dominant size class: 84
Date inventoried: 06/26/2018
Volumes:

BA:	70		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	1	0	12
Hardwood tons/ac	25		

Current Stand Conditions: This hardwood area contains white oak, hickory, and elm that are 8" to 16" in diameter

Future Stand Conditions:

The stand will be allowed to maintain its oak-hickory component in perpetuity. Some light thinning may be required to encourage this. There is a potential for this stand, in part or full, to be managed as a High Conservation Value Forest.

Forest Management Activities:

- Leave as is

Stand Number: 40
Stand Size: 210 acres
Site index: 80
Age of dominant size class: 84
Date inventoried: 6/2/2017
Volumes:

BA:	85

	Pulp	C-N-S	Sawtimber
Pine tons/ac	2	0	26.5
Hardwood tons/ac	8		

Current Stand Conditions: Longleaf and loblolly pine occupy this site with shortleaf scattered throughout the area there is a large hardwood component. These trees are 6" to 18" in diameter. Part of this stand was burned in 2016

Future Stand Conditions:

Promote the development of stand conditions that favor uneven age longleaf, and if possible allow to become a more uniform longleaf stand, to be managed as such for the long-term. Otherwise, long rotation management of mixed pines may be allowed.

Forest Management Activities:

- Continue and expand prescribed burning on a 2-3 year rotation.
- Thin in the next 5 years to promote longleaf regeneration.

Stand Number: 41
Stand Size: 18 acres
Site index: 70
Age of dominant size class: 74
Date inventoried: 5/29/2018
Volumes:

BA:	83		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	0.7	0	27.6
Hardwood tons/ac	12		

Current Stand Conditions: This is a good quality stand of 9" to 40" diameter mixed hardwood and pine. There are pockets of pine regeneration and some mortality in the mature pines

Future Stand Conditions:

Long-term management of this stand as mixed hardwood pine may be preferable on this site. Given its location, the hardwood component may provide a good visual buffer during winter periods, while also serving as a food source for wildlife. If possible, natural regeneration should be allowed to keep this stand condition in perpetuity.

Forest Management Activities:

- No management recommendation for the next ten years.

Area 42: not in use

Area 43: not in use

Stand Number: 44
Stand Size: 3 acres
Site index: 70
Age of dominant size class: 23
Date inventoried: 06/30/2020
Volumes:

BA:	140		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	68	0	4
Hardwood tons/ac	10		

Current Stand Conditions: This stand is 23 years old and is severely overstocked.

A small part of this area was pre-commercial thinned as a demonstration area. Basel area ranges from 100-140 feet/acre and the diameters range from 2-9 inches. Natural mortality has started to thin the area out some.

Future Stand Conditions:

This stand should be allowed to develop into a mature pine stand, with the eventual production of long-rotation forest products. This stand should eventually be included in stand 20

Forest Management Activities:

- Thin when stand 20 is harvested.

Stand Number: 45
Stand Size: 10 acres
Site index: 80
Age of dominant size class: 23
Date inventoried: 7/1/2020
Volumes:

BA:	88		
	Pulp	C-N-S	Sawtimber
Pine tons/ac	6	0	50
Hardwood tons/ac	15		

Current Stand Conditions: This a mature overstocked and somewhat repressed loblolly stand with diameters around 10-14 inches.

Future Stand Conditions:

Long-term rotation of loblolly, with small clearings to allow for plantings, or clearcut and planting in loblolly pine continuously.

Forest Management Activities:

- Thin stand, using individual tree selection when stand 20 is harvested. Reduce BA to 60 when thinned. Site visit to evaluate harvest potential

  .

NonForested Areas

The following areas have been designated non-forest use areas and are categorized as wildlife opening, wildlife food plots, recreational areas, or facilities.

Area 900: (Approx .1 acres) This area is a wildlife food plot.

Area 901: (Approx. .3 acres) This area is a wildlife opening.

Area 902: (Approx .25 acres) This area is a small field that is connected to the Red Fox campsite

Area 903: (Approx 7.5 acres) This area contains the South Carolina Forestry Commission Headquarters facility.

Area 904: (Approx .15 acres) This area is a small field that is connected to the Bobcat campsite.

Area 905: (Approx. .2 acres) This area is a wildlife food plot.

Area 906: (Approx. .4 acres) This area is a wildlife food plot.

Area 907: (Approx. .5 acres) This area is a recreational area, Coyote Campsite.

Area 908: (Approx. 1.3 acres) This area is a wildlife opening, The Ferguson Field.

Area 909: (Approx. 3.6. acres) This area is a wildlife opening, The River Field.

Area 910: (Approx. 1.2 acres) This area is a wildlife opening.

Area 911: (Approx. 1.5 acres) This area is a wildlife opening. It contains the arboretum and is called the Cypress Field.

Area 912: (Approx. 1 acres) This area is a wildlife opening, The Dogwood Field.

Area 913: (Approx. 6 acres) This area is a recreational area. The Eagle Trail trailhead.

Area 914: (Approx. 3.1 acres) This area is a recreational area. This area contains the Gazebo and Gazebo fields.

Area 915: (Approx. 1 acre) This area is a wildlife food plot.

Area 916: (Approx. 4.5 acres) This area is a recreational area and contains the Environmental Educational Center.

Area 917: (Approx. 6.5 acres) This area is classified as a facility and contains a radio tower.

Area 918: (Approx. 5.4 acres) This area is classified as a facility and contains the headquarters for the South Carolina Forestry Commission.

Area 919: (Approx. 3.8 acres) This area is a wildlife opening and is the field in front of the SCFC headquarters.

Area 920: (Approx. 1 acre) This area is a wildlife opening.

B. Assessments and forest inventories supporting long term harvest planning

Data collected to support long-term harvest planning is part of an ongoing forest inventory plan. Subsequent to and in coordination with our development of a harvest schedule model, a 4-year, complete forest inventory was conducted across Harbison State Forest. This inventory was finished in 2020, and then inventory began again, focusing more directly on areas that experienced recent harvesting activity or planting.

From 2008 through the present, the South Carolina Forestry Commission, like many State agencies, has been experiencing a period of reduced budgetary capacity, and a loss of personnel across all components of the agency. This resulted in the diminished capability to conduct forest inventory at our previous rate. Current efforts to increase inventory data collection have included the development of better use of onsite personnel, and our inventory methods and data collection are being updated to better meet the needs of our new harvest scheduling client. While Harbison State Forest is not included in the harvest schedule model, data will be collected using the new inventory standards.

The over-arching management of Harbison State Forest is supported by a robust GIS database. On-the-ground implementation of harvesting, as well as other management operations, relies on a GIS database that includes information on roads, soils, hydrology, endangered species, elevation, and other data as needed.

These data were obtained from many different State and Federal Agencies, and developed in-house where applicable.

C. Forest inventory updates, recent research results, and recalculation of planned harvest levels

Updating of forest inventory has recently undergone a shift, as we have changed our harvest scheduling client. Data is collected using electronic field recorders and kept in-house.

D. Regional conservation planning

The South Carolina Forestry Commission and Harbison State Forest in particular are not actively involved in any regional conservation planning initiatives at this time. However, Harbison is actively involved in many education and outreach programs that address conservation planning, as discussed elsewhere in this document.

Training

Training of personnel is limited to broad-based educational programs associated with maintaining agency-specific training, Registered Forester, and in some cases Certified Forester certification.

Monitoring

Monitoring of stand harvesting is taken place by on-site personnel. Due to the limited harvesting at Harbison, with many years experiencing no harvest activity at all, personnel have had little difficulty in maintaining operational oversite, and have worked closely with forest operators on all harvest activity.

Records

For an overview of our records, please refer to our current forest inventory. Also, documentation may be available in the form of harvest contracts.

2. Forest Productivity

Reforestation

A. Reforestation and long term forest management planning

Most of our acreage at Harbison State Forest is forested, however, some areas are maintained in an open condition for recreational purposes. No immediate plans are in place to convert any of these open-use areas.

Our Agency-wide approach to forest management is to avoid pre-commercial thinning where possible. Harvest activity at Harbison, due to its limited volume and frequency, is not accounted for on a year-over-year basis. Instead, harvesting activity takes place as needed, with the minor revenue gains added to the overall State Forest Budget. We do not use or plan to use any fertilization or pruning techniques with forest management.

B. Reforestation program

Artificial and natural regeneration schemes are dependent on the current stand cover type and desired future cover type. The following provides a general overview of how we approach these stands, however, some deviation may be expected on an individual basis, simply as a result of such a large management area.

In much of our pine forest, where we are either replacing a stand with the same species or replacing Longleaf Pine, our plan includes artificial planting, using available seed stock from the Forest Commission Nursery program. However, in these areas where significant regeneration is evident and noticed by field personnel, we may refrain from planting and allow for natural regeneration, especially in stands of limited access or within a streamside management zone.

In our hardwood forests, we allow for natural regeneration following a clear-cut rotational harvest. Site conditions following harvest particularly increased light penetration to the forest floor, have been found to be conducive to the development of a stand of desirable species composition. In hardwood stands or more commonly mixed hardwood stands with a significant pine component or site conditions favorable for pine, we may use artificial regeneration to convert the stand to a more desirable composition couple with harvest techniques aimed at reducing the hardwood component over time.

In stands where artificial regeneration is used, we monitor the success of our planting over the years following planting to ensure we have adequate survival. Our planting density has been variable, however, we generally plant from 500

(wildlife planting) to less than 700 trees per acre. Following evaluation of our seedling survival rate, we may either replant the stand or in-plant the stand depending on its condition.

In stands where natural regeneration is allowed, very little monitoring has been conducted. Some spot sampling has been conducted during years 5-10, and results have shown a desirable stand component however follow-up assessments are generally not conducted. At Harbison State Forest, where aesthetics and recreation are significant factors in all harvest activity, we promote the use of small-scale rotational harvest and uneven-aged management approached that limited the impact of harvesting, and provide for a mosaic of naturally regenerating stands.

C. Assessments supporting reforestation programs

Planting is conducted generally in the late fall through early winter, which is recommended for improved success rates. Planting is conducted by contract work, through a bid proposal program as required by state law. Purchase, handling, and storage of the seedlings are conducted by Harbison State Forest personnel to ensure proper techniques are adhered to. Monitoring of the planting operation is also conducted to ensure proper spacing and planting depth are maintained, as outline in clear language in the planting contract.

Seedling survival rates are determined through the sampling of planting sites in early spring over the 2- to the 5-year period following planting. Our experience at Harbison State Forest has found that early assessments (first and second-year post-planting) capture good estimates of survival rates, and continued monitoring of stand development less critical. By year five, if planting success is not evident then timing needs of adhering to long-term planning goals require that we replant the site.

Seedling survival checks, evaluation, documentation, and response action materials are provided to field personnel through the Management Reference Manual, and also in the Forms appendix of this document. Electronic versions of these forms have also been distributed to all Forest personnel. Record-keeping will be kept on the individual stand basis, in hard copy.

D. Use of improved planting stock, varietal seedlings, and exotic species

Agency policy requires that we obtain seedling stock from our Forest Commission Nursery operated by ArborGen. To assist the operation of the nursery, Harbison State Forest allows the nursery to schedule its operations around private vendors first, with may impact the timing of delivery and quality of seedling stock on a year-to-year basis. Generally, we plant cost-effective loblolly or longleaf Pine variant, however, in years where demand is low, we may acquire surplus stock of improved variants. We do not plant exotic species.

E. Afforestation

Any area thought to be in consideration for afforestation will be given great consideration for surrounding forest cover type and activities. Sites will be evaluated for potential species compatibility and negative impacts to natural communities, due to afforestation of site. MSF will examine soil types, productivity, and native ranges to determine appropriate species for planting. Care will be taken to determine the existence of important or rare natural communities and the presence of threatened/endangered species; should they be found, afforestation will not occur.

Since most of the Forest is in acceptable forest cover, only a few areas of the forest have been or will be in consideration for afforestation work. As mentioned previously, areas of insect mortality, or clearings used for training exercises have been replanting. Also, we retain the right to allow some of our retired wildlife food plots to revert to full forest cover, although no such plans are in place for the immediate future.

Use of Chemicals

A. Forest chemical program

Our forest chemical program is limited to pre-planting of sites following harvest and only if needed. We time these broadcast applications near the end of the growing season, to optimize our mortality while reducing other risks associated with heavier spraying. However, other spraying times may be utilized, as needs dictate. Our Herbicide Application contract has been standardized and is used throughout the State Forest system. It is explicitly in conformance with BMP requirements and allows for the establishment of spray rates as determined by Forest Director/Manager, commonly under consultation with a chemical representative, but barring this contract requirements specify that applications be limited to the lowest application rate possible to reach desired forest conditions. To ensure consistency across the State Forest system, the current chemical contract in use (and updated periodically) is provided digitally to all State Forests, is provided in the Management Reference Manual (in development), and is provided in the Forms appendix of this document.

Harbison State Forest is aware of and does not use chemicals listed under the World Health Organization (WHO) type 1A and type 1B, unless no other alternative is available, and the Stockholm Convention on Persistent Organic Pollutants. Reference material can be found on the agency employee website under the state forest section.

Other chemical uses, specifically by forest personnel, are mostly limited to weed control, invasive species management, and urban forestry and landscaping applications, as much of our Forest is in heavy recreational use. Additional training has been conducted or is underway for personnel to be trained and/or certified in chemical use, and through such training will be aware of and follow all rules and regulations as apply to chemical uses of public lands. We require all personnel to follow the notification, signage, and spraying conditions as outlined in our Herbicide Application contract. All staff applicators will be trained on location and use of chemical spill plan and spill kit.

B. Best management practices

The South Carolina Forestry Commission is the lead agency in South Carolina in designing, interpreting, monitoring, and updating forestry best management practices (BMPs) that protect water quality and conserve site productivity. Best Management Practices are science-based forest management practices, developed pursuant to federal water quality legislation, that minimize or prevent nonpoint source water pollution from forestry operations and give forest landowners and the forestry community guidelines to follow in practicing good stewardship on our valuable forestland. BMP implementation protects the quality of our drinking water and helps sustain the productivity of our forests for future use.

As part of the South Carolina Forestry Commission, the state forests lands, including Harbison State Forest, will serve as models for BMP implementation. They should meet or exceed all established BMPs, all applicable state water quality laws, and the requirements of the Clean Water Act for forestland. State forests will make all efforts necessary to ensure that there are no negative impacts to water quality or site productivity from forestry operations (i.e., forest road construction, timber harvesting, site preparation, reforestation, prescribed burning, pesticide application, fertilization, or minor drainage) on their lands.

BMP Training

All state forest employees involved in the supervision of forestry operations will be required to have appropriate BMP training (i.e. Timber Operations Professional or equivalent), and all contractors operating on state forests will be required to have appropriate BMP training (i.e. Timber Operations Professional or equivalent) and will be responsible for BMP compliance on their worksite. State forests will include this requirement in all bid invitations and contracts.

Operational measures for maintaining site productivity

A. Stand level practices

Harbison State Forest is mostly situated on soils of poor productivity, and indeed this characteristic partially is responsible for the state to acquire the property. From a harvesting approach, the condition of many of the sites and their associated soils, being primarily steep, heavily gullied, and susceptible to erosion, requires significant concern and attention to minimize damage by harvesting activity. We outline in all contracted harvesting operations that BMPS be adhered to, skid rows and decks are minimized in size and impact to the site, and field personnel monitoring the harvest address any violations of areas of concerns as they occur. We use a performance bond as part of the contract to ensure all post-harvest clean-up work is conducted.

We have not experienced the need to work with timber contractors to allow for seasonal access to timber to mitigate any problems associated with regular and infrequent flooding. However, in some cases, we may provide for inclusions to our harvest contracts in include road improvements as part of the overall bid. These improvements are geared at preventing damage from harvest activity, and in cases improve the current condition of the road, in terms of access, run-off control, and general maintenance. Since some bottomland forest is present, in association with a large riparian zone along the Broad River, there may times in the future where concerns associated with access will arise.

We require that the site be left to specific conditions that are beneficial to subsequent harvesting, but since we use hand crews to artificially plant, we allow for retention of large woody debris and tops. Site preparation may include prescribed fire application to minimize the obstruction this harvesting debris may pose, however at Harbison State Forest we have limited ability to conduct burns due to adjacent roads, public use, smoke hazard, and public safety.

Biomass in the form of fuel chips and carbon deferrals is managed in conjunction with other forest products. These products may be sold independently or in conjunction with other forests, product sells when deemed silviculturally appropriate and will not degrade forest resources.

Monitoring of soil conditions as part of a timber harvest will be conducted utilizing the Management Activity Inspection Report, as part of the flowsheet checklist for harvest activity. Harvest inspection, post-harvest inspection, BMP checklists, planting inspection, and seedling survival (and potential subsequent response actions) will all be recorded and kept in hard copy. These documents are updated periodically and distributed digitally across the State Forest system for uniformity, are available in the Management Reference Manual, and are provided here in the Forms appendix of this document.

B. Landscape-level practices

We have not, in recent years, adopted the use of any landscape-level harvesting practices, however, we do maintain an active forest-wide road maintenance program. Following harvest activity and road impacts, Forest personnel work to reclaim the road to its previous condition (or better) and reduce any short-term erosion concerns from timber haulage. The following more completely describes our landscape-level roads program.

State forest roads will be assessed annually by a designated, TOP-trained individual. The assessment will target erosion problems, improper location, BMP non-compliance, and will address the need for surfacing material, entrenchment, general maintenance, and requirements for the installation of structures or technology to minimize traffic impact. The monitoring process may result in a determination to limit or restrict forest traffic to control recurring maintenance problems.

• Documentation of annual forest road assessments will be held on file at each state forest office. Documentation will include, at a minimum, dated maps with identified road problem areas highlighted and the prescribed corrective actions indicated.

New road construction or major roadwork will be recommended by the forest director. New road design should comply with all applicable BMPs and should consider location, width, slope, purpose, adaptability to alternate use, and functional life. Cost, urgency, and complexity of construction will be determining factors in a decision to solicit contractors.

• Installation of structures such as bridges, culverts, water bars, ditches, etc. will comply with current BMPs and regulations as may be mandated by other agencies.

Forest Health

C. Forest health programs

We consider forest health as many-faceted. Impacts on forest health are many, and thus this section addresses first our approach to natural disasters and forest management, and then the subsequent risks from more common health issues, such as insect and disease outbreaks.

Effects of Natural Disaster

Several natural disasters may affect our State Forest lands, though primarily wildfires, flooding events, and hurricanes/wind storms are considered the most likely. Indeed, the impacts of these types of events have been recurring and constitute a significant factor in how many of our management operations can take place.

Wildfire

Fire is a natural part of the forest ecosystem across much of the State Forest system. We maintain a program of prescribed fire management, both to enhance the condition of the forest stands while also serving to mitigate wildfire risk through forest fuel reduction. However, periods exist where the risk of uncontrolled wildfire on State Lands is high. In such cases, the South Carolina Forestry Commission, being recognized as the Agency with authority over containing and suppressing all wildfire on both State and private lands, is readily equipped to address fires on Harbison State Forest by trained personnel.

Flooding

Flooding poses a minimal risk across most of Harbison State Forest, of short duration along an existing stream and creek bottoms, however, our forest bottomland along the Broad River may be inundated for significant periods. Access during these events may be limited, and some road improvements may be required post-flooding. Timber harvest activities at Harbison are generally limited to regeneration harvests potentially up to 50 acres in size, however, size is usually limited to 20 acres or less. Adjacency restrictions are adhered to as described in our management section, and the stand is allowed to naturally regenerate. When needed, buffer strips are used to protect our riparian zone forest, and some thinning may be conducted in these stands as needed. These thinnings are done in accordance with BMPs and help to maintain a healthy forest while providing some additional revenue.

Hurricanes

While small-scale wind events occur fairly frequently across the forest, we consider the damages and management implications to be generally small and can be addressed on an individual basis. Large-scale wind events, primarily hurricanes, are an inevitability in the Southeastern Coastal United States. Due to being farther removed from the coastal area, damage from hurricanes at Harbison is considered to be marginal to minimal. Through thinning operations, we maintain stands with adequate spacing which reduces windthrow susceptibility. Also, as a part of the States' Incident Management System, we have an enhanced ability to address the immediate effects of a hurricane event. Through training, maintenance, and readiness planning, we can open roads, provide access, and generally address user safety immediately after an incident.

Ice Storms

The risk of severe ice storms in the central region of South Carolina is moderate and may occur infrequently. Our management for and conversion to native longleaf pine across much of the forest, which has a natural resistance to ice storms, has helped to diminish the risk associated with ice storms. However, in the event of an occurrence, Salvage logging will be performed, where possible, on any affected portion of the Forest unless the potential for research from the event is discovered.

Insects and Disease Risks

We consider active forest management, and maintenance of stands in a healthy and vigorous growing condition, as the most important approach to reducing impacts from insects and disease. Prescribed fire is used to promote forest health, but only in a limited capacity due to access, topography, species cover, and personnel requirements. Our location in central South Carolina has noted planting risks from several species of insects, and the timing of replanting will be optimized to reduce this risk. Frequent monitoring of our Forest is required to address these risks on an as-needed basis.

Some monitoring of the Forest is conducted as part of State-wide initiatives, but we generally address areas of concern as they develop. Where possible, we minimize the impact or spread of the outbreak through harvesting, a successful and recommended approach to some insect control. All such activities are incorporated into the planned harvest activity, and updates are made to our stand inventory as required.

D. Assessments supporting forest health programs

Our most important data collected for forest health is our forest inventory data, used to determine the timing of harvest operations. This data focuses on standard metrics needed to develop growth and yield models, including trees per acre, basal area, species, individual trees measurements of diameter at breast height, stopper height (height to the first defect), and total height. If no defect is found, we use total tree height to develop volume estimates.

Other types of assessments that may apply include regional studies conducted by our Agencies Insect and Disease laboratory, which monitors for outbreaks and insect population measures, and general day-to-day assessments by on-site field personnel.

E. Fire prevention and control

As previously discussed, the Forestry Commission, and thus Harbison State Forest is the lead Agency used to address wildfire suppression in the state. This designation provides us with ample resources and training to maintain an active prescribed fire management program.

Through the use of fire to reduce fuels, we have seen improved site conditions for planting, and improve stand conditions through reduction of hardwood competition in those stands where hardwoods are undesirable. Decreases in personnel in recent years have resulted in fewer acres burned, but overall forest condition is still healthy, and as we return to full staffing we anticipate increasing the acreage of our burning program.

Training

Our management staff at HSF is limited to one full-time manager, who is well trained in many aspects of forest management. Additional assistance is available for forest management activities as needed by other State Forest personnel. As part of the Forestry Commission, all personnel participates in frequent workshops addressing many aspects of forest management and health.

Our staff has included technicians and other employees who are provided the opportunity to complete a forest technician training program geared at improving their ability to assist management, including identification of forest health issues. All staff is required to maintain forest firefighter fireline certification status, which includes an annual refresher course in fireline safety, and completion of a physical fitness examination.

Finally, our Harbison State Forest manager maintains the safety and integrity of our chemical applications for wildlife plantings on the Forest. Field application and recommendations are developed cooperatively with our product support agency, we currently do have on staff a licensed pesticide applicator.

Monitoring

We maintain, review yearly, and supervisor approval of sites as needed. An annual report of our activities is provided as part of the review of the Forestry Commission in its entirety.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Site Preparation within 1st year	Site burned or chem. Treated	100%	Annual review	Harvest Supervisor

	as needed			
Sites planted within 2yrs	Trees planted correctly, and the correct spacing	100%	Annual review	Harvest Supervisor
Seedling establishment	Seedling survival checks	90% +	2-3 yr post-planting	Harvest Supervisor

Records

Our planting plans are available on an annual basis, as part of our bid proposal process. These data are then added as updates to our forest inventory. Chemical records and application plans may be available as part of the manager records and will be stored in the stands documentation. All inspection documents will be available in stand records and as part of a summary annual report and include and are in reference to:
Soils condition
BMPs
Timber harvest inspection
Post-harvest inspection
Planting
Seedling Survival
Other (storm damage, invasive species response, etc…)

Certification of personnel is documented through our Agency training manager. Certifications include:
Forest Fireline Qualifications
First Aid
Chemical Applicators/Operators License
BMP (TOP Logger) Certified

3. Protection and Maintenance of Water Quality and Quantity

A. Key water quality and riparian constraints impacting forest management planning

Our harvesting activity includes stands that contain riparian boundaries, which we address at the implementation of the harvest activity. All areas are managed in complete accordance with BMP recommendations and frequently exceed the minimum distance requirements as we consider other factors, such as aesthetics or wildlife.

B. Water quality, quantity, and riparian protection programs

As previously mentioned, our agency is the lead in BMP monitoring for the state, and as such, we include guidelines for maintaining their use in our timber sale contracts. Site conditions over much of the Forest reduce the need for extensive road and landing design; however, in areas where the concern exists, our staff works closely with harvest operators to best locate their decks and skid trails. Compared to many of our other State Forests, Harbison has a robust network of well-maintained roads, and remediation work associated with logging is much more limited than elsewhere.

Our GIS contains several hydrology layers, including streams and other water bodies, and these layers are used to identify areas of concern in stands before harvesting is conducted. Field foresters make on-the-ground assessments for BMP use, and design stands boundaries in accordance.

Harbison State Forest is on the edge of the Broad River Water shed. waters origination on Harbison State Forest will be allowed to flow freely to the rest of the Broad River watershed. The South Carolina Water Plan will be referenced It shall not be redirected for other uses except for temporary emergency actions such as wildfire suppression.

In cases where there is a concern with BMP adherence or rules, we use our Agency personnel in charge of BMP monitoring to assist in making management decisions. Due to the location of Forestry Commission headquarters on the Forest, we have much greater involvement with our BMP staff and the associated opportunities for cooperation.

Monitoring of BMP issues and compliance has recently been addressed through the development of a flowchart to guide the activities monitoring required subsequent to a given activity. The Management Activity Inspection Report

includes documentation specific to BMP issues. These documents are distributed digitally, available in the Management Reference Manual, and included here in the Forms Appendix of this document.

C. Contract provisions

Our harvest contract requires compliance with BMP use, and also the inclusion of a performance bond to promote BMP use or pay for remediation work, as needed.

Training

The Forestry Commission provides for BMP training through the administration of the TOP Logger program, and all Agency staff may attend the training free of cost.

Monitoring

We monitor indicators key to water quality as part of our harvest operations review. The following table may be used to illustrate the compliance rate we require of harvest operations. All approval of post-harvest site conditions is through the field forester with supervisory approval.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Proportion of stream crossings installed with a quality score of 95% or more.	Post-installation inspection	100%	In conjunction with each installation	Road construction supervisor
Proportion of blocks that comply with riparian BMPs	Post-harvest inspection	100%	Annual following compilation of all final harvest inspection results	Harvesting supervisor

Records

The key supporting documents for BMPS and their implementation are our BMP guidelines produced as part of our Agency, our GIS layers, harvest maps where

required, and example contracts, all of which are available upon request. Records for the monitoring of management activities, as described in the previous section, are also available and address all forest activities with the ability to track for BMP issues.

4. Conservation of Biological Diversity including Forests with Exceptional Conservation Value

Landscape Level Management Programs and Practices

A. Key biological diversity and wildlife issues impacting forest management planning

Our harvest activity takes into account the protection of critical habitats, and protection of any known threatened and endangered species where presently known or as encountered. Being situated in a more developed location, within the city limits of Columbia and almost surrounded by urban development, we consider that the protection on these habitats is more significant, not less, not just for the value-added for the wildlife community, but also for the educational merits and aesthetics that may be associated with them.

B. Landscape-level programs

In contrast with its relatively small size, there does exist a range in species composition and diversity across the Forest, as we move from riparian bottomland forest upslope to more xeric sites dominated by pine communities. We find our current management approach, primarily emphasizing recreation and wildlife management, adequately provides for these species, habitats, and ecological communities.

Fish and Wildlife

Harbison State Forest contains a wide range of habitats including diversity within stands and across the landscape. This mix of forest types provides excellent habitat for many wildlife species, although some limitations on use and adaption are inherent of our urban surroundings.

Many forest management activities are beneficial to wildlife. Practices such as thinning prescribed burning, planting beneficial tree species, and supplemental wildlife food plots encourage a variety of game species. White-tailed deer, bobwhite quail, mourning dove, and eastern wild turkey are the most prevalent game species in our forests. Other species, including rabbit, gray squirrel, fox squirrel, and waterfowl are also present. The streams on and adjacent to Harbison State Forest, particularly the Broad River, contain fishing opportunities for sunfish, largemouth bass, and other species.

While hunting is one of the multiple-use goals of state forest lands, game management is not pursued at Harbison due to size, location, safety, and conflict with other management objectives. Most state forest lands are enrolled in the

South Carolina Department of Natural Resources Wildlife Management Area program, which allows public hunting opportunities. Through this cooperative agreement, DNR monitors the health of game species and provides recommendations and funding to maintain and increase populations. Since hunting opportunities are not available at Harbison, it does not necessitate the monitoring or management of game populations.

Non-game wildlife species play an important role in management planning and prescriptions on state forests. Threatened and endangered wildlife species and species of concern, including the green salamander, and neo-tropical migratory birds should be considered when forest management activities take place. Endangered species populations should be managed with input from DNR and the US Fish & Wildlife Service, utilizing appropriate habitat management measures to increase and maintain populations. Where sensitive species are known to occur, the particular concern should be given to reducing fragmentation of habitat, maintaining and creating additional high-quality habitat, and complying with the Endangered Species Act.

C. Assessments and inventories supporting wildlife programs

Key assessments of wildlife are currently not being taken at Harbison State Forest, although Forest staff may infrequently make informal wildlife surveys to aid in the application of forest management activities. While we do not actively monitor any species' population, we are committed through responsible and educated management prescriptions to maintain a healthy forest wildlife community.

For identification of threatened or endangered species and high conservation value forests, Harbison State Forest and the State Forest system at large are currently developing a program to search for potential populations on State lands. This program is being based on the known occurrence data as provided by the South Carolina Natural Heritage program, relative proximity of that data to State lands, and overlapping or similar habitats that exist on State lands as can be determined through a spatial analysis of soils, stand, topography, hydrology, and/or other data layers specific to a given population. The timing of search efforts will coincide with known flowering periods of flowering plants or active periods for vertebrate species. Currently, the Forest is utilizing the Harbison State Forest Threatened and Endangered Species Manual for reference information on potential species that may exist on the forest, identification features, and management implications as available. This manual was developed in-house utilizing South Carolina DNR threatened and endangered species list by county, and research information as available through NatureServe. In addition, we have established communication lines and a feedback methodology with the State Heritage Program to notify the said of the discovery of any new populations (forms for documentation of new species populations are included in the Species Reference Manual).

D. Forests with Exceptional Conservation Value

Other than the South Carolina DNR, which is our primary contact and advisor for the management of critical species and habitats on the Forest, we do not maintain any current associations with other agencies or groups. Also, we maintain any GIS data related to these critical on a request-only basis, to discourage site degradation from public access. No known areas on the Forest are of Exception Conservation Value.

E. Landscape considerations in threatened and endangered species programs

At Harbison State Forest, there are a few opportunities for us to work with imperiled species and/or sites. Instead, in areas where we manage our forest in a healthy, native ecosystem, we can use the area as a learning tool for education and outreach programs. As part of the commitment of the Forest to serve as an outdoor classroom, we consider the maintenance of examples of critical habitat to be as important as more typical production-based research stands.

F. Support for old-growth conservation

Our active forest management does not identify old-growth conservation as a primary objective. However, in areas of limited access, riparian areas, swamps, and other sites, we may allow for old-growth conditions to remain or develop. Given these conditions are present across a large portion of Harbison, the potential for some tracts of timber to develop into old-growth forests, or conditions that resemble old-growth, is significant. However, due to the heavy use by visitors and the large number of trails present in the Forest, some of the mature and over-mature specimens, typically associated with old-growth conditions, may have to be removed for safety concerns.

G. Programs to address invasive exotic plants and animals

Harbison State Forest and the State Forest system, in general, did not previously maintain a centralized monitoring and record-keeping program for occurrences of invasive plants and animals. Through the development of this steering document, several changes have been made to our Agency approach to this issue, as described following.

While previous outbreaks of some species are known, we have initialized a monitoring program from the current date, to include all occurrences on all State Forests. State Forest will include the spatial reference information into an updating Invasive Species GIS layer, which may be used for record-keeping and other management purposes. The datasheet will be available at the State Forest in hard copy in the Management Reference Manual.

Also in use is an invasive species reference guide, specific to Harbison State Forest, and containing a collection of species listed by threat level that employees

should be made aware of. To date, species information has been compiled at the State and County level for all threat levels (from Emerging to Severe), and identification information and recommended management response information is still being collected.
Harbison State Forest, in particular, has not been significantly impacted by the presence of invasive plants and animals. However, our location along a large riverine system makes us extremely susceptible to invasive plants associated with aquatic corridors. Exotic plants and animals will be addressed on an individual basis and as needed.

H. Prescribed fire

The use of prescribed fire has been mentioned in several instances in this document. Forest personnel use prescribed fire in many instances: site preparation, fuel reductions, timber stand improvement, aesthetics, and improved habitat through species management. Our personnel is trained and licensed through the Agency, and we maintain a high level of fire preparedness.

I. Research

Harbison state forest participates in research demonstrating the conservation outcomes of forestry management collectively through the SIC and by allowing research to be conducted on the forest.

Stand Level Management Programs and Practices

J. Stand level programs

Within stand, management allows for increased biological diversity through many factors. Retention of snags, allowance of coarse woody debris, and the robustness of our BMP riparian zone interpretation all increase the variability of habitat and diversity within stands. Our adjacency constraints on harvesting and are limits of harvest size (green-up constraints based on age and tree height, and rotational harvest limited to 50 acres maximum size), also provide for a shifting mosaic of stand conditions at the tract level.

K. Threatened and endangered species

Management for threatened and endangered species may be subdivided into three categories: determination of populations, management of populations, and effects of populations on other forest activities.

Determination of populations on State lands has previously relied on a review of known populations, and management actions were taken accordingly. As described previously, a new methodology is being developed to further examine State Forest lands to determine if any previously unknown populations may exist. As new populations are discovered, they will be added to the species GIS layer and based on Heritage Program data.

Management of known existing populations has been ongoing and has mostly required limiting of harvesting activity or other management activity on or new the site, unless or until such activity has been deemed non-detrimental to the species. To supplement our existing management approach, and as support documentation for potential species that may be discovered in the future, the in-house Species Reference Manual includes species by species management recommendations.

In stands where threatened or endangered species are known, we make management decisions as described elsewhere here. As we implement our harvest activity and develop site-specific plans for product removal, particularly adjacent to areas of concern, we shall review GIS documentation for the potential presence of species and make changes to our long-term plans accordingly. Additionally, we request in our harvest contract that operators also monitor for the presence of species, and notify us if any species of concern are located.

The State Heritage program is utilized to determine the presence or potential presence of any threatened and endangered species. The most recent review (June 11, 2021) of State Heritage program data did not reveal the presence of any potential species on the property at the GI/G2 level.

Training

For prescribed fire applications, staff are certified through the Prescribed Fire Manager Program, as well as provided training through the status of the wildland firefighter. Additional training may be obtained through additional workshops, most frequently as part of the continuing education requirements to maintain registered Forester Status. Most recently, several Forest staff attended a training exercise in adopting harvest plans to benefit forest bird populations.

Monitoring

The key indicators to monitored landscape and stand-level biodiversity management programs can be identified in the following table.

Indicator	Measurement	Target	Measurement	Measurement

	Method		Frequency and Timing	Responsibility
Proportion of old-growth forest by management unit/ecological grouping	Inventory updates	Based on accepted science	Annual	Forest Director
In-block retention levels	Post-harvest inspection (part of post-harvest inspection checklist)	Average 7%	Following completion of logging activities on a block-specific basis.	Forest Director

Records

Inventory data support the implementation of harvest areas per our wildlife management considerations, green-up constraints, and the presence of robust riparian habitats. Training records of those employees who have attended the Prescribed Fire Manager training are available through our Agency training manager. Records of harvest contracts support our size limitation and placement, per considerations listed above. Documentation of the presence of threatened and endangered species, as well as invasive species, will be retained in a continuously updated GIS layer.

5. Management of Visual Quality and Recreational Benefits

Visual Quality Practices and Programs

A. Key visual quality issues impacting forest management planning

Our visual constraints in harvesting are many and are even more significant at Harbison State Forest than any other state lands due to heavy recreational use and related considerations. Primarily, we leave forest buffers along travel corridors, some recreational trails, and recreational waterways that exceed BMP standards. We also limit harvest size, and manage for the timing of harvest activity, to prevent large non-forested openings. We may leave aesthetic buffers along trail systems, or in areas heavily frequented by recreational users. However, in all of these areas, we may violate our constraints during harvesting operations where we are converting from an undesirable species to a more desirable species. These decisions are made on a stand-by-stand basis.

B. Visual quality management program

We do not have an active management program in our road design, and frequently we work with our timber contractors and operators to allow them to install decks and skid rows where best meets their needs. Due to the heavy visitor use of this Forest, we frequently work with contractors in determining the location of the deck to minimize the size of the deck, decrease or eliminate any potential debris piles that may be left behind, and ensure that no litter or waste associated with the contractor are left on site. Enforcement of these rules complies with the performance bond inclusion on the timber contract.

At Harbison State Forest, where elevation change is not significant in terms of visitor use, our previously mentioned management limitations to harvesting activity, both in time and space, provide the necessary protection to the overall perseveration of our forest viewshed.

C. Assessments and inventories supporting visual quality programs

The determination of average clearcut size, for reporting purposes, will be reported as two distinct values, each independent of standardizing criteria. Initially, we shall report the standard clearcut size as may be determined through the mathematical average of clear-cuts sold/scheduled during a given Fiscal Year. In addition, a manual inspection of those clearcut sites will be conducted to provide a modified clearcut size. This will incorporate any adjacent clear-cuts that

have been conducted within the previous three contract years unless their growth has exceeded limits as outlined in our green-up constraints, which is 15 feet of height. Current standard adjacency rules call for a five-year limit on adjacency for rotational harvests, to ensure that the 100-acre limit is not exceeded.

Point adjacency will be considered when calculating total clearcut size, and planning strategies will be incorporated to address this change. At Harbison State Forest in particular, where clearcut activity is limited due to various factors, we do not expect the modified clearcut size to differ from the standard clearcut size.

We do not currently use any visual quality analysis or digital terrain models to inventory our viewsheds or to make management decisions. While no plans are in place for that incorporation, the Agency and Harbison State Forest are committed to improving our ability to better manage our State Lands and may incorporate those programs in the future. Our primary inventory approach is maintaining a healthy viewshed through the use of green-up constraints and adjacency constraints, as discussed elsewhere.

D. Clearcut harvest provisions

Generally, our green-up constraints require a specific height or age to be reached before an adjacent stand can be harvested. Our rotational harvest areas are limited to 100 acres in size, with the only exception being hardwoods, which may be larger due to the relative increase of direct sunlight on the development of the residual stand. In practice, we limit our harvest activities at Harbison State Forest well below the acceptable maximum size, which ensures we continue to provide a healthy and aesthetic forest cover that meets our visitor's expectations and satisfaction.

Public Recreational Opportunities

E. Recreation

The goal of the South Carolina Forestry Commission is to provide outdoor recreational opportunities on the state forests that are compatible with forest management activities. The SCFC will strive to accommodate the needs of the various recreational user groups that enjoy the state forests. However, in contrast to much of the State Forest system, forest management activities will generally take place in coordination with the management of recreational activities. While we still adhere to forest principles for the protection and enhancement of the environment, recreation and forest education programs will frequently take priority over other forest management activities.

There are a variety of recreational opportunities in South Carolina's state forests. The opportunities are as diverse as the forests themselves. There are hiking trails, and fishing and hunting opportunities. Other activities include geocaching, picnicking, kayaking, and bird watching to name a few. Unique to Harbison, we also have several developed recreational areas, including an interpretive visitors center and conference center, outdoor gazebos, open field areas, and camping facilities, that are available to the general public for rental, or in some cases relationships with educations groups (Boy Scout camping areas).

It is through sound multiple-use forest management that the Forestry Commission plans to maintain the integrity of and enhance the state forest environment while providing for future natural resource uses, including recreation.

Training

Access to staff for training in wildlife and habitat management, and recreational development is limited. However, workshops are held by the Agency on occasion, and Forest personnel is encouraged to attend.

Monitoring

We can identify much of the success of our recreational programs through the collection and monitoring of fees associated with their use. We also provide users feedback opportunities through many different venues; through our website, through a personnel-maintained Facebook page, and personal communications.

From a stand perspective, our use of GIS, and specifically a harvest scheduling model, reduces the potential or requirement for monitoring to ensure that our size limits are not exceeded. However, annual review of planned harvest areas allows for verification, as shown following.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Clearcut size does not exceed constraints	Inventory updates	100%	Periodic	Harvest Supervisor and Forest Manager
Providing needed recreational opportunities	Permit sales	Maintain or increase permit sale numbers	Annual	Forest Director

Records

Key items supporting the above programs that are available for verification include our inventory data, and maps of our recreational sites and fishing streams, and web media supporting the use and availability of onsite facilities. Other data relevant to this Section may be available in our annual SFI Report.

6. Protection of Special Sites

A. Key special sites issues impacting forest management planning

The South Carolina Forestry Commission is aware of many special sites existing across our State Forest system lands, and continues to maintain, preserve, and enhance these sites on an individual basis. Our general guidelines for all State Forest lands expressly forbid metal detecting, collection of artifacts of any kind, digging on or damaging forest lands, or collection of any vegetative material without the express consent of the Agency.

The location of some of these sites, specifically existing structures and cemeteries, are made available to the public with varying levels of access (some of the buildings are still in use by the Agency, and thus access to their interior is limited). However, many of the historical sites are considered sensitive, and information regarding their location is kept within the Agency and made available on an individual basis.

B. Special Sites program

Historical Value

Historical sites are denoted by their cultural, historical, and/or archeological significance and include existing structures, old home sites, gravesites or cemeteries, Native American mounds and middens, historical trails, and others. In most cases, our management approach is to leave these sites as undisturbed as possible, with the location information made available to the public upon special request only. This strategy has helped to protect these sites from the potential damages of collection and looting common at widely known historical sites. The following subsections address each significant category in more detail.

Site of archeological value is present in many locations across the State Forest System. The presence of Native American sites on Harbison State Forest has not been well documented. While the location of these sites may not be known, we shall maintain the location details of these sites in-house to avoid site degradation as they are discovered.

A limited number of gravesites are present on Harbison State Forest. Access is provided upon request or through existing easements for families who still actively use cemeteries, however, maintenance of these access routes is only

improved by the Agency upon request. Harvesting activity is generally excluded from these sites where timber is present, although infrequent harvest may take place as needed to maintain or preserve the site.

Biological Value

Many sites exist across the State Forest system that may be considered to have high biological value, based on species diversity and composition. For much of the Forest, we consider this intrinsic value to be inherent in our current management objectives, which are managed through species selection, harvest type, and fire regime. These factors may improve or maintain desirable forest conditions. Unless specific action is required on a stand-by-stand basis, additional management concerns are not incurred on forest-wide stands. However, in locations where threatened and endangered species are known or suspected to be present, or where the habitat is considered critical, then the Agency adopts stricter management policies as needed, as is described in Section 4 of this document. While we consider sites of biological value significant, we shall maintain and manage for them under the conditions outlined in the previous section.

Aesthetic Value

The South Carolina Forestry Commission recognizes that in some instances, the aesthetic value inherent to some sites is sufficient to merit additional consideration under our management regimes. Several strategies are in place to protect and enhance these sites. Most commonly, we protect these sites by minimizing the occurrence of management activity. The activities that may continue include applications of prescribed fire, and harvest activity as required to maintain site conditions. Another strategy we use is the extended applications of our standard Best Management Practices, where we exceed recommended or minimum buffer distances around harvest areas to improve the Visual Quality Zones (VQZs) of adjacent areas. This approach not only reduces the visual impact of harvesting on the recreational community but also improves the intended performance of the buffer strip while providing enhanced habitat and habitat corridors for wildlife.

Other

Sites with unusual, rare, or unique geologic formations, evidence of past land use desirable for preservation, or other considerations as they are discovered will be managed as special sites on State Forest lands.

Management Implications

The management of special sites will be determined on a site-by-site basis, however, some general rules may be followed, as described here. Our priority is the preservation of the site or maintenance of the site where some interaction is needed for its long-term viability (i.e. sites where fire-driven ecosystems are present). In cases of cemeteries, gravesites, or other culturally significant sites where community members require access, we shall work to establish and maintain adequate access to the site in accordance with BMPs and other considerations as addressed throughout this document. For sites where access is deemed limited, such as archeological sites, old home sites, threatened and endangered species, and/or any other sensitive sites, access will only be granted upon request, and by approval of the State Forest Director.
All sites will be considered before any management activities, timber harvesting or other, are conducted within significant proximity of the site, as determined on an individual basis.

C. Assessments supporting special sites programs

Harbison State Forest, as part of the State Forest system, has incorporated the spatial location information of its known special sites into a State Forest system GIS layer. If other special sites are discovered on the property in the future, their location information will be relayed to the State Forest Manager and included in the GIS layer. Spatial data is maintained data in-house for the protection of the sites.
As previously discussed, all special sites of a biological nature will be addressed under Section 4 of this document. However, a stand-level reference layer, used for management decision-making, includes the presence of all significant concerns, including threatened and endangered species, special sites, invasive species, and others is maintained.

Training

No training for special sites has been identified at this time.

Monitoring

We monitor special sites and their continued protection and preservation in the following format:

Indicator	Measurement	Target	Measurement	Measurement

	Method		Frequency and Timing	Responsibility
Proportion of identified special sites protected during operations	Post-harvest inspections	100%	Ongoing at the completion of each unit	Forest Manager

Records

Our management and development of a special sites program are ongoing. A GIS layer is available to document this, as well as the plans as outlined in this SFI. Other documentation may be verified through personal communication with Forest staff.

7. Efficient Use of Forest Resources

A. Key Utilization issues impacting forest management planning

At Harbison State Forest, our regional location does not provide for strong markets for delivery of forest products, and we suffer significant decreases in stumpage values as a result. Since our primary management of this forest is not timber production, our harvest level is sporadic and based on needed operations based on stand conditions. In cases where under low-grade material or poor value species are present, we are allowing natural stand replacement rather than harvesting as the revenue stream is not worth the risk to the resource, and the short-term impact to our viewshed. Similar conditions exist across the Forest, and only areas that are part of education and awareness programs, research activities, or where stand health concerns and/or viable revenue streams exist will be actively managed for timber.

B. Utilization programs adopted

Post-harvest, we inspect our harvest areas to ensure that site conditions outlined in each harvest contract are met. This includes the treatment of slash and debris, reductions in piles, and that all stems above given diameter are removed. This ensure the site is better prepared for harvesting, burning, and/or receptive to seed dispersal from leave trees. Inspections are performed utilizing the Management Activity Inspection Form, which is available in the Management Reference Manual, has been distributed digitally, and is included in the Forms Appendix of this document.

The Commission and State Forest lands base our volume estimates, used in developing our bid sales, based on common diameter and height specifications. However, we do not translate these measurements into required log utilization specifications, we mentioned above. Traditionally, we have allowed the harvest contractor to determine the optimal specifications for merchandizing. Similarly, as our timber harvesting is done under contract, we have not tried to impose restrictions on how that timber is merchandized, or developed any incentives for the better utilization of off-grade wood.
species and off-grade wood.

C. Assessments and inventories supporting utilization programs

Harvest operation sites are only monitored in relation to conditions as outlined in each harvest contract, which includes site conditions post-harvest, relative to slash, debris, and related factors. Our performance bond, included in each contract as described elsewhere, is used to ensure these conditions are met. However, since

product utilization has not become a component of our stumpage marketing, we do not have any current assessments in place for that oversite.

Following the audit and successful SFI certification, we recognize the potential for our timber products to have increased market value. Given such, we may, through a research and trial period, explore the inclusion of product utilization guidelines or incentives.

Training

Training in this section is only applicable to site inspections and regarding post-harvest conditions. Our training is provided by supervisory personnel, onsite, and under the general orientation period. We recognize that the Agency has opportunities to develop a better training program to better monitor post-harvest condition assessments, and which may lead into similar assessments of product utilization, as mentioned above.

Monitoring

Key indicators monitored in relation to utilization programs are summarize as following:

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Inspections with adequate post-harvest conditions	Harvest inspections	100%	Following completion of logging activities on a block specific basis.	Harvest supervisors
Average waste wood levels per sale (potential)	Waste/Site surveys	Company/ forest type specific	Following completion of logging activities on a block specific basis.	Harvest supervisors

Records

The key items supporting the above programs may be available in the following:

- Harvest inspections
- Training records (maintained by Agency Training Supervisory)

8. Recognize and Respect Indigenous Peoples' Rights

A. SCFC shall recognize and respect Indigenous Peoples' rights as required by state and federal law.

Currently, no state or federally indigenous peoples have claims relating to SCFC State Forest lands. As inventories and management activities are conducted, should possible sites be discovered State Forest Manager and State Lands Coordinator are to be made aware. State Historic Preservation Office (SHPO), State Commission of Minority affairs, and state archeologist will be consulted. Forest action Plan

B. When Indigenous Peoples' make claims.

SCFC State Forest Manager and State Lands Coordinator shall confer with affected *Indigenous Peoples* with respect to sustainable forest management practices

1. State Forest Manager and State Lands Coordinator shall confer with affected *Indigenous Peoples* seeking to:
   a. understand and respect *traditional forest-related knowledge*;
   b. identify and protect spiritually, historically, or *culturally significant* sites;
   c. address the use of *non-timber forest products* of value to *Indigenous Peoples*
   d. respond to *Indigenous Peoples'* inquiries and concerns received.
   e. annually invite affected indigenous peoples for open comments on forest management plans and activities. (UNDRIP)

Training

State Forest personnel will be made aware of this procedure. As issues develop, additional training may become necessary.

Monitoring

Key indicators monitored in relation to utilization programs are summarized as follows

Records

If something is identified, it will be incorporated into a GIS data layer and managed appropriately.

9. Climate Smart Forestry

A. Risk and Mitigation Climit hub

a. Risk

Climate change presents a risk to the forest in its current state. Forest inventories are utilized to monitor trends and changes in stand structure to determine if stands are adversely affected by climate change.

b. Mitigation

Maintaining a healthy forest is the primary mode of risk mitigation on Harbison State Forest due to climate change. Strategies used to maintain a healthy forest are species selection, prescribed fire, diversity between stands, and veritable density thinnings.

B. Carbon Storage and Greenhouse Emissions

a. Storge

Harbison State Forest monitors carbon markets for opportunities to offset harvest revenues to promote increased carbon stocking. Designated stands are managed for old growth-like conditions that act as carbon sinks.

b. Emissions

Harbison State Forest utilizes a “light hand on the land” approach to forest management, reducing the release of soil carbon by limiting soil disturbance. A “Grow Don’t Mow” approach has been adopted for back forest road right-of- aways reducing the volume of fossil fuels consumed during right-of-way maintenance. This is achieved using existing features for firebreaks and monitoring timber harvests for accuice rutting. Other efforts to reduce carbon emissions include using LED lights in facilities and using electric equipment when applicable.

10. Fire Resilience and Awareness

The South Carolina State Forest system Is committed to limiting the number and size of wildfires on its managed lands and the landscape.

A. Resiliency

Harbison State forest uses the Southern Group of State Foresters Wildfire Risk Assessment Portal to Identify areas most prone to wildfire and to identify at-risk communities.

The South Carolina Forestry Commission is the lead agency in SC to prevent and control wildfires. Prevention is accomplished through a combination of efforts, including Red Flag warnings, an active prescribed burn program on individual state forests, on the landscape level through land owner services, and maintaining healthy forests with site-appropriate species. Harbison State Forest maintains a robust system of trails and roads utilized as fire brakes minimizing the need for additional soil disturbance.

B. Awareness

Harbison State Forest houses the Agency's Education department and is used as the backdrop for educational activities taught through PLT and our "GOOD FIRE BAD FIRE " lessons. This is in addition to the firsthand exposure and signage forest visitor experience associated with the demonstration prescribed burns conducted on Harbison State Forest.

11. Legal and Regulatory Compliance

A. Access to applicable laws and regulations

Several components are involved to ensure staff and contractors have access to relevant laws and regulations. Our Forest personnel are provided with training in BMPS, and work closely with contractors through the evaluation of contract obligations. Our contractors themselves are required to be TOP Logger certified in the case of timber operations and a Certified Tree Planter when hired for planting operations. Adherence to BMPS and other provisions is required within the contract, with performance bond limits to ensure operators remain within

those limitations. BMP guidelines and other relevant information is available through many venues, including the headquarters of the Forest operations.

B. Compliance management program

Forest personnel conduct a post-harvest inspection, site monitoring during harvesting as feasible, and address any issues as they arise. Site inspection includes BMP considerations as well as general site conditions following operator egress. In addition, we maintain an open line of communication with our contractors to allow them the opportunity to contact us as they encounter situations that may conflict with BMP guidelines, their contractual obligations, or other issues. Further opportunity is provided during post-harvest evaluation and any required mitigation work, which is terminated with the release of the aforementioned performance bond.

C. Compliance with social laws

Our Agency personnel are made aware of all social laws, and rights of workers at time of hiring. In addition, our Agency has a defined Grievance Policy for redress of conflicts as they may arise. All information required relevant to workers' rights is post in a public area.

For our contractors, we include language in our contracts that requires the following is ensured for their employees:

- Workers compensation is provided to all employees
- Workers are provided with liability insurance
- Contractor will only employee legally allowed workers

Training

For contractors, the TOP logger program and BMP training is required by contractual agreement. Other regulatory requirements may be addressed in the contract itself, and this outside the scope of a training regimen.

Forest personnel is also provided with training through TOP Logger, BMP training, and other training opportunities that may address legal and regulatory compliance as they become available and as part of personnel's continuing education.

Monitoring

Key indicators monitored in relation to compliance programs are derived implicitly from those references made in Section B and are highlight in the following table.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
BMP Awareness	Signage of sales document	100%	Individual sales contract	Harvest supervisor
BMP and tree planting awareness	Approval to bid on contracts	100%	Annual review	Management section
BMP compliance	Post-harvest site inspection	100%	Individual sales contract	Harvest supervisor/BMP Forester

Records

The following is a list key items supporting the above programs that may be available for verification:

- BMP guidelines
- Timber sale contract
- Tree planting contract
- Training records if staff (available through Agency Training Coordinator)
- Training records of contractors (available through the Management Section)

12. Forestry Research, Science and Technology

A. Research Program

While research is not a significant activity at any of our Forests, as part of the South Carolina Forestry Commission and the SC SIC, we are associated with many research Opportunities, with the Forest providing sites and data as and when requested. The following sections describe the most prominent research activities currently underway.

The Agency has an Insects and Disease lab, which monitors for different activity across the state, as well as frequently on the Forest. This data is used both in-house and cooperatively with other state and federal agencies. The work conducted by this lab helps to identify threats and concerns associated with insect and disease outbreaks and better prepare us to address these events as they occur.

The Agency maintains its Nursery (partnering with ArborGen) and tree improvement operations. Through association with our nurseries, we provide areas for research plantings, actively use nursery stock within our operations, and serve as a benchmark for tree improvement performance over time.

In some cases, our collective State Forest system has provided land and data as outside support for other research requests, including chemical applications, tree improvement studies, biomass plantations and more.

Our Agency also serves as the liaison for the conductance of Forest Inventory and Analysis (FIA) for the state of South Carolina. Our Agency employees conduct all plot sampling, with coordinated reporting of results which is used both internally and by the United States Forest Service.

Results of agency-wide research are publicity provided on the SC Forestry Commissions website

Lastly, through our association with ForSight Resources and our development of a Harvest Schedule model, our forest inventory data has been used in the development of forest growth and yield models. This data is then used to better adapt our forest growth to planned harvest levels.

B. Internal research

As mentioned previously, our Agency conducts Insect and Disease studies and Tree Improvement through our Nursery operations. Through our association with the South Carolina DNR, and through our direct participation of most of our State

Forests as a Wildlife Management Area (Harbison State Forest being the sole non-participant due to hunting restrictions associated with the property), much of the work performed on biological diversity and wildlife management has fallen under their purview. Still, Forest personnel frequently assist in data collection as needed.

C. Funding of external research

The State Forest system and Our Agency collectively is not associated with external research funding at present. As a state agency, we consider our role more associated with providing access and land for research plots where possible as our method of supporting forest research, rather than through direct financial contributions.

D. Regional analyses

As previously mentioned, Agency personnel collect and report FIA data, which is used internally for economic development research, as well as general forest research and reporting at the State Level.

Our Agency has also been the state compliance monitor for BMPS, and have generated annual reports of compliance for many years, and multi-year analysis of compliance in white papers and peer-reviewed journal publications.
Lastly, The Commission, and State Forest personnel, served as lead reporters and committee researchers in a comprehensive analysis of the state, finalized in the South Carolina State Forest Resource Assessment.

E. Climate change

The State Forest system and Our Agency collectively is not associated with any climate change research.

Training

Adequate training for Forest Research, Science and Technology is difficult to identify. Due to the specificity of the research topics discussed, Agency personnel receive training and educational opportunities related to their unique areas of study.

Monitoring

We identify the key indicators monitored in relation to research programs in the following table.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
FIA data reporting	Accuracy of data collected	95%	Throughout year	FIA supervisor
Continued contributions of nursery[1]	Realized tree improvement	Increased awareness and sales	Annual review	Nursery Manager
Continued contributions of nursery[2]	Increased supporter of a-/reforestation	Increases in seedling sales	Annual review	Nursery Manager

Records

The following items document the above programs, and are available for verification:

- South Carolina Forestry Commission Yearly Accountability Report
- South Carolina Forestry Commission Annual Report
- Nursery sales reports and white papers
- Insect and Disease white papers
- Annual BMP Compliance report and Journal Publications
- South Carolina State Forest Resource Assessment

13. Training and Education

Internal Training and Education

A. Communication of commitment to the SFI Standard

Our plans to communicate our commitment to the SFI Standard are ongoing and predicated by our successful acceptance into the program. Currently, all SFI communication has been at the upper management level throughout the State Forest system. Upon acceptance, we plan to initially educate our personnel on the SFI program, our role in the program, and how our participation may improve our State Forest, its operation, and their contributions to the State Forest.

B. Roles and responsibilities for achieving SFI objectives

The monitoring of our SFI performance and our maintenance of the Standard will be conducted by state forest staff, with oversight review by the State Lands Coordinator.
An annual internal audit will be conducted by all Forest Directors and Managers, evaluating how the SFI Standard has been communicated, acknowledged, or recognized by outside parties, and how its use internally has impacted our daily operations. This review will be summarized, and then evaluated by the State Lands Coordinator.

C. Staff and contractor training and education

SFI Workshop and Continual Education

As part of the Forestry Commission's program to adhere to the SFI and Tree Farm Standards, annual training is offered and to be attended by all field personnel. The goals of the training are multiple:

- to address aspects of current training programs as they relate to the Standards
- to incorporate training modules covering new reporting tools and record-keeping procedures
- to cover areas of training that have been identified as needed for compliance
- to provide a more complete overview of what the SFI and Tree Farm Standards are.

Topics to be addressed in the workshop will include invasive species, BMP compliance, site monitoring, and recording, special sites, and threatened and endangered species. In each Workshop there will be one focus topic that will be covered in greater depth. Later Workshops will cover a different topic, providing an increased level of knowledge over time of all components of the Standard.

Subsequent to participating in the Workshop, all staff will be required to attend (physically or virtually) a training refresher course to be held annually. New employees will be provided with an overview of the original training until another Workshop is held, which are currently planned to be biennial or as needed. All employees identified as needing comprehensive SFI training will be required to attend the Workshops as they are held. Other employees, depending on their training needs, maybe adequately trained through the annual refresher course, or specific Workshops as they might pertain to their job functions.

1. Forest Management Planning

Training of personnel is limited to broad-based educational programs associated with maintaining Registered Forester status and in some cases Certified Forester certification, however some components of forest management planning may be addressed during the SFI Workshop. Other planning issues may be commonly addressed through conference and training workshops, attendance to which is required to maintain certification in either of the aforementioned programs.

2. Forest Productivity
Our management staff at Harbison is limited to one forest director, who is well trained in many aspects of forest management, and one forest technician. Additional assistance is available for forest management activities as needed by other State Forest personnel. As part of the Forestry Commission, all personnel participates in frequent workshops addressing many aspects of forest management and health.

Our staff has included technicians and other employees who are provided the opportunity to complete a forest technician training program geared at improving their ability to assist management, including identification of forest health issues. All staff are required to maintain forest firefighter fireline certification status, which includes an annual refresher course in fireline safety, and completion of a physical fitness examination.

As Harbison State Forest hosts many educational and training events at our facilities, our staff has benefitted from this close association and frequent participation in these events.

Finally, our Harbison State Forest Director maintains the safety and integrity of our chemical applications for all uses on the Forest. Field application and

recommendations are developed cooperatively with our product support agency, and we now maintain on staff a licensed pesticide applicator.

3. Protection and Maintenance of Water Quality

The Forestry Commission provides for BMP training through the administration of the TOP Logger program, and all Agency staff may attend the training free of cost. No other training regimens associated with BMP training are currently planned.

4. Conservation of Biological Diversity

For prescribed fire applications, staff are certified through the Prescribed Fire Manager Program, as well as provided training through the status of wildland firefighter. Additional training may be obtained through additional workshops, most frequently as part of the continuing education requirements to maintain registered Forester Status. Most recently, several Forest staff attended a training exercise in adopting harvest plans to benefit forest bird populations which were held on the Forest.
While training is informal in this aspect, employees will be made aware of the presence and usefulness of the State Forest Threatened and Endangered Species Manual, which will be kept in a visible and accessible location to all staff. Through encouragement and familiarity with the Manual, we shall provide all Staff with a general knowledge of potential species, and their distinguishing characteristics.

5. Management of Visual Quality and Recreational Benefits

Access to staff for training in wildlife and habitat management, and recreational development is limited. However, workshops are held by the Agency on occasion, and Forest personnel are encouraged to attend.

6. Protection of Special Sites

Training for special sites is ongoing, and will be conducted as part of a State Forest System-wide project. In this regard, training of personnel will include addressing all known and potential special sites, impacts to management activities, and reporting tools available if and when new special sites are determined. Site visits may be included, and all personnel who need to know the exact location of special will be provided with such.

7. Efficient Use of Forest Resources

Training in this section is only applicable to site inspections, and regarding pre- and post-harvest conditions. Our training is provided by supervisory personnel, onsite, and under the general orientation period. We recognize that the Agency

has opportunities to develop a better training program to better monitor post-harvest condition assessments, and which may lead into similar assessments of product utilization, as mentioned above.

14. Legal and Regulatory Compliance

For contractors, the TOP logger program and BMP training is required by contractual agreement. All contracts utilized are updated regularly, and adopted by every State Forest. Other regulatory requirements may be addressed in the contract itself, and this outside the scope of a training regimen.

Forest personnel are also provided with training through TOP Logger, BMP training, and other training opportunities that may address legal and regulatory compliance as they become available and as part of personnel's continuing education. Further identification of which personnel are required to receive this training is available in the table at the end of this section.

15. Forestry Research, Science, and Technology

Adequate training for Forest Research, Science and Technology is difficult to identify. Due to the specificity of the research topics discussed, Agency personnel receive training and educational opportunities related to their unique areas of study. Some training may be available at irregularly scheduled training meetings, and through hands-on assistance with ongoing research projects on State Forest lands.

17. Community Involvement in the Practice of Sustainable Forestry

Other than participation in the aforementioned programs (primarily landowner tours, and Wood Magic Forest Fair) we are involved in, no specific training relevant to community involvement has been identified or provided for. Specific training operations for the operations mentioned is available however, and we have found that personnel who seek to participate in these programs have also participated in training events and workshops relevant to community involvement, such as Project Learning Tree training and the SC Envirothone

18. Public Land Management Responsibilities

Training for public land management responsibilities has been determined to be non-specific, however Forest personnel have attended leadership programs and other team-building workshops, which help to provide them with training for many relevant situations.

19. Communications and Public Reporting

Training opportunities for Forest personnel, specific to the enhancement of their ability to communicate and more effectively report information, with special consideration to the SFI Program and Standards, will be developed as needs and availability dictate.

20. Management Review and Continual Improvement
The Agency and State Forest system have not developed a training program for management review and continual improvement, however, we hope our continued association with the SFI Program will provide us opportunities to do so in the future.

Overall training of Forest personnel is reviewed in the following table.

SFI Staff Training Matrix (SCFC-01)

South Carolina Forestry Commission

Procedure: South Carolina Forestry Commission's job categories are assigned training based upon their SFI roles and responsibilities. A number one (1) indicates in-depth training is needed in order to maintain technical competence, while a number two (2) indicates on-the-job or general awareness training. Training shall be conducted as specified, or as assigned by the supervisor. The SCFC Training Coordinator & State Forest SFI Program Manager reviews the SFI Training Matrix during the Annual Management Review to ensure that appropriate internal personnel have completed their assigned training.

Training Area	Basic SFI Training	Best Management Practices (SFI 10)	FECV & T&E Species (SFI 4)	Chemicals (SFI 2.2)	Aesthetics (SFI 5)	Special Sites (SFI 6)	Utilization (SFI-7)	Legal & Regulatory (SFI 14)
Frequency	*Annual*	*Ongoing*	*As Needed*	*As Needed*	*As Needed*	*As Needed*	*As Needed*	*As Needed*
Job Categories								
State Forest Manager	1	1	1	2	1	1	1	1
State Forest Foresters	1	1	1	2	1	1	1	1
State Forest Forestry Technicians	1	1	1	2	2	1	1	1
Designated Herbicide Applicator	1	1	1	1	2	2	2	1
State Forest LE Tech	1	1	2	2	2	2	2	1
State Forest Wildlife & Fish Specialists	1	1	1	2	2	1	2	1
State Forest Trades Specialist & Equipment Operator	2	1	1	2	2	1	2	2
State Forest Admin Services	2	2	2	2	2	2	2	2

A. Staff and contractor training and education

Overall training of Forest personnel is reviewed in the following table.

	Forest Directors	Foresters	Forest Technicians	Management Support	Other Agency Personnel
General awareness of SFI commitments	✓	✓	✓	✓	✓
Detailed knowledge of Company objectives and programs	✓	✓		✓	
BMP training	✓			✓	

Wildlife habitat recognition	✓	✓	✓	✓	✓
Chemical usage requirements			✓		✓
Forest health factor recognition	✓	✓	✓	✓	✓
Utilization standards	✓	✓		✓	✓

External Training and Education

B. SFI Implementation Committee participation

The South Carolina Forestry Commission is not an active participant in outside training. Contingent on our acceptance, this status may change.

C. SFI Implementation Committee training criteria and delivery mechanisms

Not applicable, as described previously.

Monitoring

Our monitoring approach to internal training and education is two-fold. First, we are currently developing a new training scheme for State Forest land employees, to address shortcomings that have been found during this SFI process. Most significantly, much of our training has become on-the-job experience, and during the orientation of our new personnel. While we have not experienced any negative results from using this approach, it does not allow us to monitor or address areas of training that might be beneficial to our personnel, or that might require retraining at some point in the future. Second, as a new participant in the SFI program, we are in the process of educating our personnel of our involvement, and benefit of participation. The following table outlines our initial approach at assessing our own training levels, while additionally assessing how our participation in SFI is being acknowledged for Forest personnel.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility

Employee Training	Adequately trained in recognized areas	100%	Annual Review	Forest Directors and/or Stand Land Coordinator
Employee's SFI Application	Can express knowledge of and use of SFI and assoc. docs.	100%	Annual Review	Forest Directors and/or Stand Land Coordinator

Records

Previously, the State Forest system had not identified training needs as thoroughly as required by either of the American Tree Farm of Sustainable Forestry Initiative standards, and record-keeping had been limited to major certifications such as fire-line qualifications. Moving forward, the Agency is committed to enhancing our training regime through targeted goals as described previously, with detailed record-keeping of our achievements being maintained internally with the SCFC training coordinator. This will provide the Agency with long-term documentation of training received, and simplify the review process for later certification audits.

14. Community Involvement in the Practice of Sustainable Forestry

Support for Sustainable Forest Management

A. Support for SICs

The Agency, and Forest personnel, provide partial support, mainly in terms of personnel time, for the following SIC programs.

- Project Learning Tree
- Wood Magic Forest Fair
- Teachers Tour

These different programs require different assistance. In previous years, the State Forest system at large has served as the location and facility support for all of these events. Personnel have provided event support and will continue do to so. Lastly, some personnel work with these programs as part of their day-to-day functions, providing, at least indirectly, some financial support in terms of staffing.

B. Educational materials

The development and distribution of educational material to forest landowners has, in years past, fallen under the supervision and direction of other entities within the Agency. Still, we provide educational materials on-site at each State Forest and also participate in a leadership role in landowner and educational tours on our lands.

C. Conservation of managed forests

From an Agency perspective, conservation of managed forests has been addressed through cost-share programs. Under our State Forest system expressly, we have provided facilities and program support, although generally on an as-needed basis.

D. Regional conservation planning

Generally, Harbiosn State Forest is not part of any regional conservation planning efforts at this time.

Public Outreach and Education

E. SICs and other outreach organizations

As previously described elsewhere, our outreach participation is through leadership and participation in the Wood Magic Forest Fair, Teacher's Tour, PLT programs, and The SC Enviorthone.

F. Public educational opportunities

Our public educational opportunities are many. Across the State Forest system, we participate in Future Farmer's of America events, conduct field tours, provide training and educational opportunities to local schools, provide volunteer opportunities to various groups, and have developed or are in the process of developing self-guided tours, respectively. In addition, personnel frequently provide their services through speaking engagements and teaching opportunities, too many schools, groups, conferences, and other users on an annual or by request basis.

Stakeholder Concerns

G. Company processes for receiving and responding to public inquiries and concerns

There are many avenues through which public inquiries can be made and subsequent response actions taken. The Agency, and Forests alike, use interpersonal communications, social media, regular postal and email, and other avenues as they arise to take concerns and inquiries for our actions. These inquiries are then directed to the appropriate parties, researched, and then responded to in a timely fashion.

H. Nonconforming practices

The Agency and State Forest system will address stakeholder concerns regarding apparent nonconforming practices on an individual basis.

Training

Other than participation in the aforementioned programs we are involved in, no specific training relevant to community involvement has been identified or provided for. Specific training operations for the operations mentioned is available, however, and we have found that personnel who seek to participate in

these programs have also participated in training events and workshops, such as PLT training. However, through the SFI certification process, and the review of our personnel training levels, we recognize a need to address community involvement as well as other issues as we develop a new training scheme for all State Lands employees, as described in Section 16.

Monitoring

Monitoring of our response to community involvement will be internal, and on an individual basis as needs arise.

Records

The key items supporting the above programs and available for verification are as follows.:

- Educational records (Training Coordinator)
- Records of educational opportunities provided, as available
- Review documentation and event advertising for listed SIC programs
- Records of FOIA requests (SCFC Public Information Officer)

13. Public Land Management Responsibilities

A. Public land planning and management processes

The State Forest system is involved in land management planning in many venues. Overarching guidance is provided through a Long-Range Plan, which serves as a working document for setting long-term goals and objectives. Following these guidelines, we continue to update and adapt a management plan specific for each State Forest, which more closely addresses their respective objectives and relative concerns. Finally, and in concert with our management plans, a harvest schedule model has been developed and is in the process of being updated, which supplies ancillary data for our Forest system to better meet its needs.

B. Stakeholder engagement

Contact with local stakeholders over forest management issues is provided through many relationships, associations, and previously mentioned venues, as described elsewhere. Various trail groups, riding associations, and other organizations have, over time, developed lines of communication with our Forest personnel, from interpersonal to regular meetings, where concerns over respected issues can be brought forward, or addressed collectively. However, the State Forest position has, to this point, been to address concerns or requests on an as-needed basis, rather than seek out the inputs of any given group.

C. Indigenous peoples

D. We address issues or events as if and when they arise, making appropriate contact with tribal leaders when necessary, and take any corrective actions, as deemed appropriate.

Training

Training for public land management responsibilities has been determined to be non-specific, however Forest personnel have attended leadership programs and other team-building workshops, which help to provide them with training for many relevant situations.

Monitoring

Our key indicators for monitoring programs for involvement in sustainable forestry are limited to the planning records and the implementation of the monitoring process still in development. We identify our preliminary indicators as described here:

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Management Plan	Current to State Forest Need	100%	Annual review	Forest Manager
Harvest Schedule Model	Current to State Forest Need	100%	2-3 yr review	Forest Manager

Records

The key items supporting the above programs that are available for verification are as follows:

- Records of FOIA requests
- Records of meetings with groups and associations
- Management Plans
- Personnel Training records (Agency Training Coordinator)

14. Communications and Public Reporting

A. Summary audit report

Upon completion of this draft version of our current existing management plans tailored to the SFI standard, we shall submit our documents to the certification body for auditing. These documents will be assessed for content, and congruence to the SFI Standard, and the results with be submitted to SFI Inc. for posting to an external website. We shall also maintain all records of our audits for certification or recertification on hand at our Forestry Commission Headquarters in Columbia, SC, as well as each respective State Forest. We shall also work towards developing a documentation library, to better facilitate the auditing process.

B. Annual progress reports

The State Lands Coordinator is responsible for SFI Standard adherence, and for collating data and preparing and submitting annual progress reports to SFI Inc. The method of review was described in detail in Section 16 (B). Reporting will be conducted in congruence with the SFI program.

Training

Training opportunities for Forest personnel, specific to the enhancement of their ability to communicate and more effectively report information, with special consideration to the SFI Program and Standards, will be developed as needs and availability dictate.

Monitoring

Key indicators monitored concerning programs for involvement in sustainable forestry are unknown at this time and will be developed through our commitment to the SFI program upon acceptance.

Records

Records will not be available until after acceptance to the SFI program is conducted and subsequent participation monitored.

15. Management Review and Continual Improvement

A. SFI program effectiveness assessment

The Agency and State Forests, in particular, will use the following categories and associated criteria in the evaluation of the effectiveness of SFI programs and achieving continuous performance improvement:

a. Improved effectiveness of management process
    i. Operational improvements
    ii. Streamlined management
    iii. Improved review process to meet Standard
b. Realized increases in SFI certified wood and wood products
    i. Enhanced revenue stream
    ii. Increased participation of contractors
c. Improved recognition of our leadership or exemplary status in sustainable forest management
    i. Increased request for SFI literature or information
    ii. Increased appearance of Agency in relevant publications and literature
    iii. Increased request for our participation in events or literature related to forest sustainability

B. Monitoring of progress in achieving the SFI objectives and performance measures

The development of useful metrics to monitor progress against the SFI objectives and performance measures is challenging. While some of the expectations are noted previously, other measures have been identified that may support our progress

Describe the basic process used by the Company to monitor progress against the SFI objectives and performance measures. Note: The key data collected to support continual improvement should be captured in the *Monitoring* sections of this document.

C. Annual management review

Describe the timing, participants, and content requirements of the annual review of progress including at least:

- Review of overall performance against the SFI objectives and performance measures

- Stakeholder concerns
- An assessment of the effectiveness of current programs
- Areas requiring improvement, related actions to be taken, timelines and responsibilities
- Proposed changes to programs
- External audit findings and any required corrective/preventive actions
- A management conclusion regarding the ongoing adequacy of the Company's SFI program

Training

The Agency and State Forest system have not developed a training program for management review and continual improvement, however, we hope our continued association with the SFI Program will provide us opportunities to do so in the future.

Monitoring

The key indicators that may be monitored in relation to effectiveness programs are identified in the following table, however, the methodology for measuring these indicators is still in development.

Indicator	Measurement Method	Target	Measurement Frequency and Timing	Measurement Responsibility
Increased awareness of SFI Status	Increased number of bids	Unknown	Individual and Annual review	Harvest Supervisor and Forest Director
Greater Public Awareness of SFI Status	Increased appearance in relevant literature	Unknown	Individual basis	Forest Director, and State Lands Coordinator
Increased effectiveness in operations	Personnel overview	Agreement of Personnel in applications	Annual review	Forest Personnel

Records

The key items identified that may support the continual improvement of our Agency association with SFI and the SFI Standards, and that may be available for verification are as follows:

- Annual Report of Audit
- South Carolina Forestry Commission Annual Report
- South Carolina Forestry Commission Accountability Report